FCC RF Test Report

APPLICANT	:	**ASUSTeK COMPUTER INC.**
EQUIPMENT	:	**ASUS Phone (Mobile Phone)**
BRAND NAME	:	**ASUS**
MODEL NAME	:	**ASUS_AI2205_E, ASUS_AI2205_F**
FCC ID	:	**MSQAI2205**
STANDARD	:	**47 CFR Part 2, 27O**
CLASSIFICATION	:	**PCS Licensed Transmitter Held to Ear (PCE)**
TEST DATE(S)	:	**Feb. 05, 2023 ~ Feb. 14, 2023**

We, Sporton International Inc. (ShenZhen), would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26-2015 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (ShenZhen), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia

ilac-MRA

A2LA ACCREDITED Cert #5145.01

Sporton International Inc. (ShenZhen)

1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055

People's Republic of China

TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG2D3005M	Rev. 01	Initial issue of report	Apr. 12, 2023

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§27.50(j)(3)	Equivalent Isotropic Radiated Power (5G NR n77)	EIRP < 1Watt		
3.5	§27.50(j)(4)	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §27.53(l)(2)	Conducted Band Edge Measurement (5G NR n77)	< 43+10log10(P[Watts])	PASS	-
3.8	§2.1051 §27.53(l)(2)	Conducted Spurious Emission (5G NR n77)	< 43+10log10(P[Watts])	PASS	-
3.9	§2.1055 §27.54	Frequency Stability Temperature & Voltage	Within Authorized Band	PASS	-
4.4	§2.1053 §27.53(l)(2)	Radiated Spurious Emission (5G NR n77)	< 43+10log$_{10}$(P[Watts])	PASS	Under limit 16.88 dB at 4611.000 MHz

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Applicant

ASUSTeK COMPUTER INC.
1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan

1.2 Manufacturer

ASUSTeK COMPUTER INC.
1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	ASUS Phone (Mobile Phone)
Brand Name	ASUS
Model Name	ASUS_AI2205_E, ASUS_AI2205_F
FCC ID	MSQAI2205
IMEI Code	Conducted : 355156850100810/355156850100828 Radiation : 355156850101156/355156850101164
HW Version	R2.0
SW Version	Android 13
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. There are four SKUs of EUT for this project. The differences between them are summary below, According to the difference, we evaluate SKU1 (ASUS_AI2205_F) to perform RF test.

Sample list				
	SKU1	**SKU2**	**SKU3**	**SKU4**
Model name	**ASUS_AI2205_F**	**ASUS_AI2205_E**	**ASUS_AI2205_F**	**ASUS_AI2205_E**
Config.	US(Pro)	US(Entry)	US(Pro)	US(Entry)
RF module board	US(Pro)	US(Entry)	US(Pro)	US(Entry)
LCD+Touch front frame	AI2205 FRONT CASE ASSY WW	AI2205 FRONT CASE ASSY WW	AI2205 FRONT CASE ASSY WW	AI2205 FRONT CASE ASSY WW
DDR	16G(Micron) Micron / MT62F2G64D8CL-023 WT:B	16G(Micron) Micron / MT62F2G64D8CL-023 WT:B	16G(Micron) Micron / MT62F2G64D8CL-023 WT:B	16G(Micron) Micron / MT62F2G64D8CL-023 WT:B
UFS	512G(Kioxia)(UFS4.0) Kioxia / THGJFJT2T85BAT0	512G(Samsung)(UFS4.0) Samsung /KLUFG8RHHD-B0G1	512G(Kioxia)(UFS4.0) Kioxia / THGJFJT2T85BAT0	512G(Samsung)(UFS4.0) Samsung /KLUFG8RHHD-B0G1
MB	AI2205_MB	AI2205_MB	AI2205_MB	AI2205_MB
Back cover	WW-Dark-Ult	WW-Light-Entry	WW-Dark-Ult	WW-Light-Entry
Battery	SCUD / C21P2101	SWD / C21P2101	SWD / C21P2101	SCUD / C21P2101
Rear Camera 50+13M	SHINETECH/CDN60B	TRIPLEWIN/CASDA-002A 1	TRIPLEWIN/CASDA-002A 1	SHINETECH/CDN60B

Front Camera 32M	TSPRECISION/TVHF2170	SHINETECH/ST-CMG07B	SHINETECH/ST-CMG07B	TSPRECISION/TVHF2170
Rear Camera 5M	HUNAN KINGCOME/KBFE378	TSPRECISION/TV8F2224	TSPRECISION/TV8F2224	HUNAN KINGCOME/KBFE378
PCB	COMPEQ	COMPEQ	COMPEQ	COMPEQ
CPU	QUALCOMM MPSP1581 / SM-8550 MPSP1581 CS	QUALCOMM MPSP1581 / SM-8550 MPSP1581 CS	QUALCOMM MPSP1581 / SM-8550 MPSP1581 CS	QUALCOMM MPSP1581 / SM-8550 MPSP1581 CS

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	5G NR n77: 3700 MHz ~ 3980 MHz
Rx Frequency	5G NR n77: 3700 MHz ~ 3980 MHz
Bandwidth	20MHz / 30MHz / 40MHz / 50MHz / 60MHz / 80MHz / 90MHz / 100MHz
SCS	30kHz
Antenna Type	PIFA Antenna
Antenna Gain	**<Ant. 7>:** n77: -2.01 dBi **<Ant. 8>:** n77: -2.71 dBi, **<Ant. 9>:** n77: 2.51 dBi, **<Ant. 10>:** n77: -0.03 dBi
Type of Modulation	CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM

Remark:

1. The maximum EIRP is calculated from output power and antenna gain, only the maximum EIRP of Ant. 9 is shown in the report.
2. The device supports n77 (1T4R) SRS resources on Ant.7/8/9/10, only the worst test data of Ant. 8 is showed in the report according to the maximum power.
3. The device supports HPUE for SA mode only.
4. 5G NR support SA mode and NSA mode. According to the maximum power between SA and NSA mode, SA covers NSA mode for conducted test items.
5. All the supported EN-DC combinations are verified conducted power, only the EN-DC combination with highest power are shown in the report.
6. The EN-DC mode combination could be referred to the product spec.
7. When temperature lower than -10 °C, EUT will be shut down automatically, thus Frequency Stability item only test -10~50 °C.

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Maximum EIRP and Emission Designator

5G NR n77 SA		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	**Frequency Range (MHz)**	**Maximum EIRP(W)**	**Emission Designator (99%OBW)**	**Maximum EIRP(W)**	**Emission Designator (99%OBW)**
20	3710.01 ~ 3969.99	0.6966	18M2G7D	0.5521	18M2W7D
30	3715.02 ~ 3964.98	0.6950	27M8G7D	0.5546	27M8W7D
40	3720.00 ~ 3960.00	0.7161	37M9G7D	0.5675	38M0W7D
50	3725.01 ~ 3954.99	0.6823	47M4G7D	0.5346	47M5W7D
60	3730.02 ~ 3949.98	0.6486	57M9G7D	0.5272	58M0W7D
80	3740.01 ~ 3939.99	0.6281	77M3G7D	0.5035	77M5W7D
90	3745.02 ~ 3934.98	0.6339	87M5G7D	0.5164	87M5W7D
100	3750.00 ~ 3930.00	0.7178	97M4G7D	0.5781	97M7W7D

Note: All modulations have been tested, only the worst test results of PSK & QAM are shown in the report.

1.7 Testing Location

Sporton International Inc. (Shenzhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	TH01-SZ	CN1256	421272

Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City Guangdong Province China 518103 TEL: +86-755-33202398		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH01-SZ	CN1256	421272

1.8 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH01-SZ	AUDIX	E3	6.2009-8-24

1.9 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 2, 27O
- ANSI C63.26-2015
- FCC KDB 971168 D01 Power Meas License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

All test items were verified and recorded according to the standards and without any deviation during the test.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

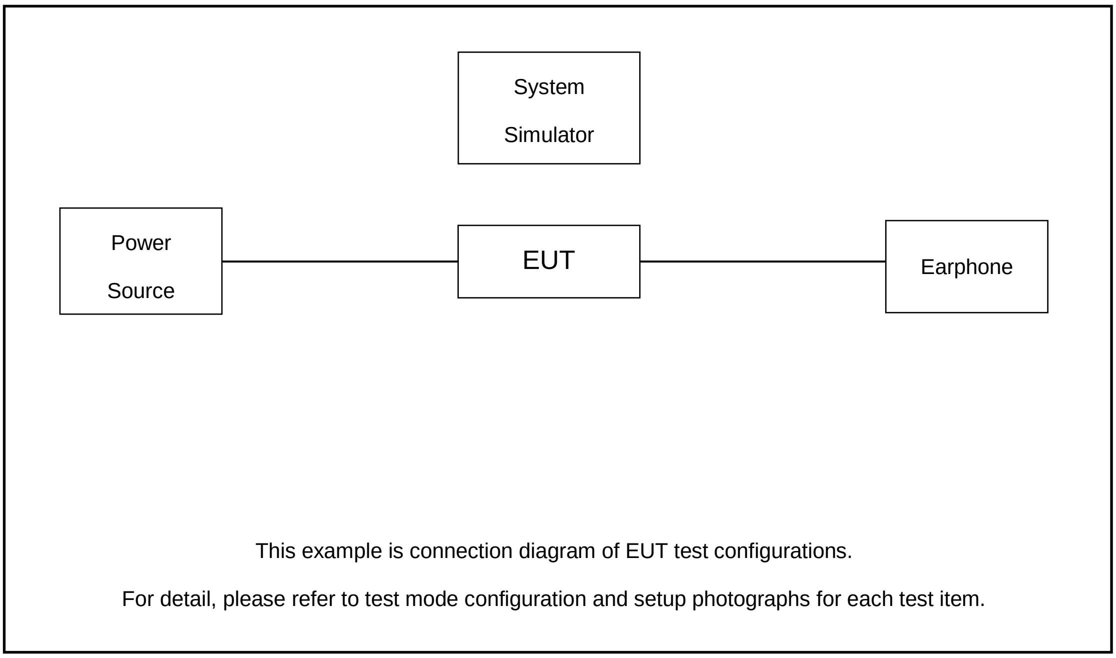
For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases were recorded in this report(Z Plane).

The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.

Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			

Test Items	5G NR	Bandwidth (MHz)										Modulation					RB #		Test Channel		
		10	15	20	30	40	50	60	80	90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256 QAM	1	Full	L	M	H
Max. Output Power	n77	-	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	n77	-	-	v								v	v				v	v	v	v	v
26dB and 99% Bandwidth	n77	-	-	v	v	v	v	v	v	v	v	v	v	v	v	v		v		v	
Conducted Band Edge	n77	-	-	v				v			v	v	v				v	v	v		v
Conducted Spurious Emission	n77	-	-	v				v			v	v	v				v		v	v	v
Frequency Stability	n77	-	-	v									v					v		v	
E.I.R.P	n77	-	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	n77	Worst Case																		v	
Note	1. The mark "v" means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. 4. Frequency Stability：Normal Voltage = 7.78V；Low Voltage =7.30V.；High Voltage =8.70V																				

2.2 Connection Diagram of Test System



The EUT has been configuration operated in a manner tended to maximize its emission characteristics in a typical application.

2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	DC Power Supply	GW	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
2.	LTE Base Station	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m
3.	NR Base Station	Anritsu	MT8000A	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 8.7dB.

Example :

Offset(dB) = RF cable loss(dB).

= 8.7 (dB)

2.5 Frequency List of Low/Middle/High Channels

5G n77 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
100	Channel	650000	656000	662000
	Frequency	3750	3840	3930
90	Channel	649668	656000	662332
	Frequency	3745.02	3840	3934.98
80	Channel	649334	656000	662666
	Frequency	3740.01	3840	3939.99
60	Channel	648668	656000	663332
	Frequency	3730.02	3840	3949.98
50	Channel	648334	656000	663666
	Frequency	3725.01	3840	3954.99
40	Channel	648000	656000	664000
	Frequency	3720	3840	3960
30	Channel	647668	656000	664332
	Frequency	3715.02	3840	3964.98
20	Channel	647334	656000	664666
	Frequency	3710.01	3840	3969.99

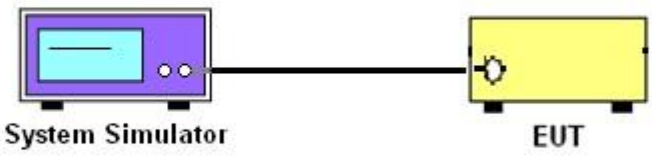
3 Conducted Test Items

3.1 Measuring Instruments

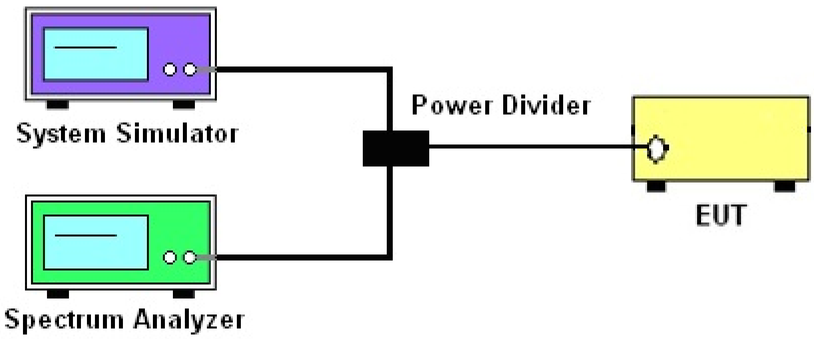
See list of measuring instruments of this test report.

3.2 Test Setup

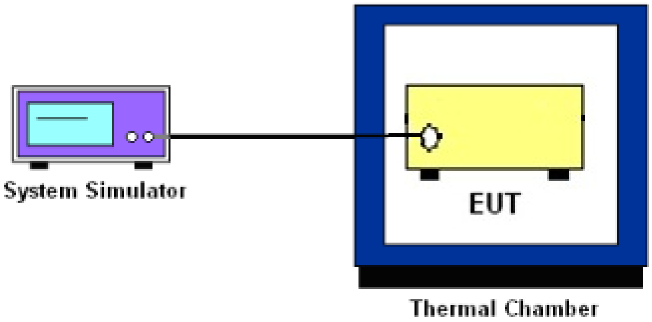
3.2.1 Conducted Output Power



3.2.2 Peak-to-Average Ratio, Occupied Bandwidth, Conducted Band-Edge and Conducted Spurious Emission



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power and EIRP

3.4.1 Description of the Conducted Output Power Measurement and EIRP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The EIRP of mobile transmitters must not exceed 1 Watts for 5G NR n77.

According to KDB 412172 D01 Power Approach,

EIRP = $P_T + G_T - L_C$, ERP = EIRP -2.15, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from the system simulator.

3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument’s resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

3.5.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2.3.4 (CCDF).
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
5. Record the deviation as Peak to Average Ratio.

3.6 Occupied Bandwidth

3.6.1 Description of Occupied Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.6.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.4
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
4. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace. (this is the reference value)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “–X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.7 Conducted Band Edge

3.7.1 Description of Conducted Band Edge Measurement

27.53(l)(2)

For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz. Compliance with this paragraph is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz.

3.7.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used or a narrower RBW was used (generally limited to no less than 1% of the OBW) and the measured power was integrated over the full required measurement bandwidth.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. Checked that all the results comply with the emission limit line.

   Example:

   The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

   = P(W)- [43 + 10log(P)] (dB)

   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.
9. When using the integration method, the starting frequency of the integration shall be centered at one-half of the RBW away from the band edge.

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

3.8.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
7. Set spectrum analyzer with RMS detector.
8. Taking the record of maximum spurious emission.
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
10. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.

3.9 Frequency Stability

3.9.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block.

3.9.2 Test Procedures for Temperature Variation

1. The testing follows ANSI C63.26 section 5.6.4
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -10°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.9.3 Test Procedures for Voltage Variation

1. The testing follows ANSI C63.26 section 5.6.5
2. The EUT was placed in a temperature chamber at 20±5°C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value for other than hand carried battery equipment.
4. For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.
5. The variation in frequency was measured for the worst case.

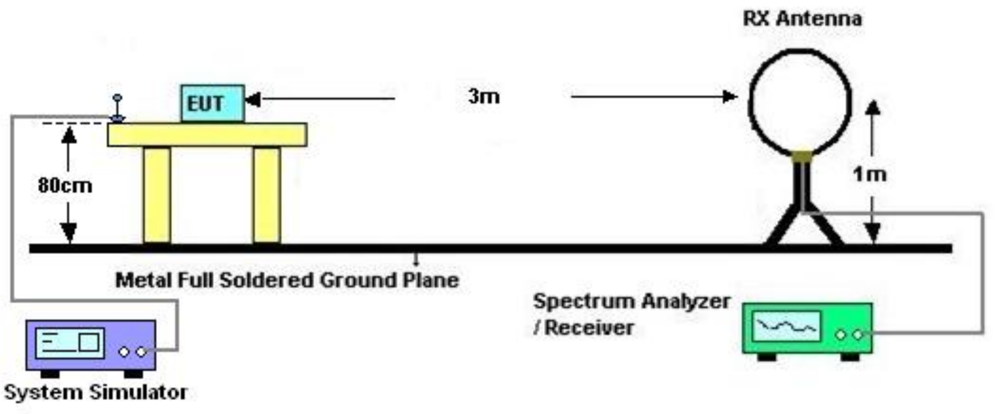
4 Radiated Test Items

4.1 Measuring Instruments

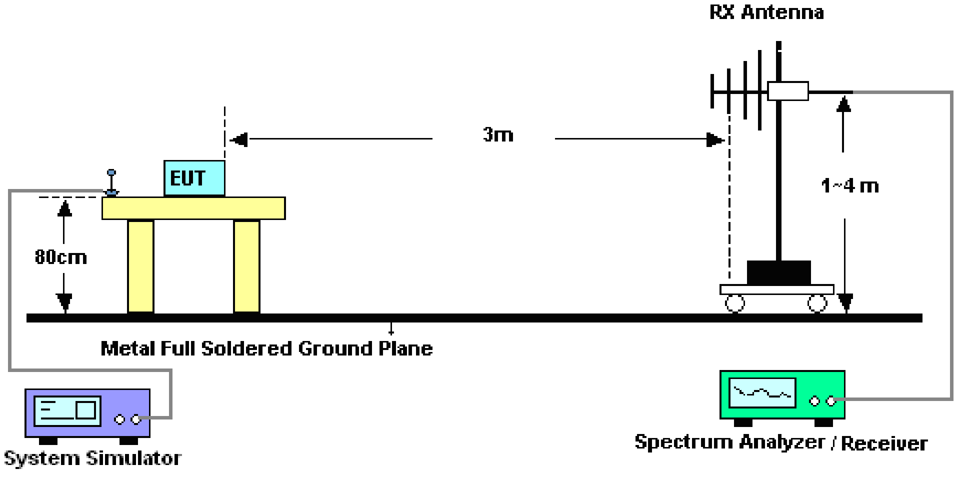
See list of measuring instruments of this test report.

4.2 Test Setup

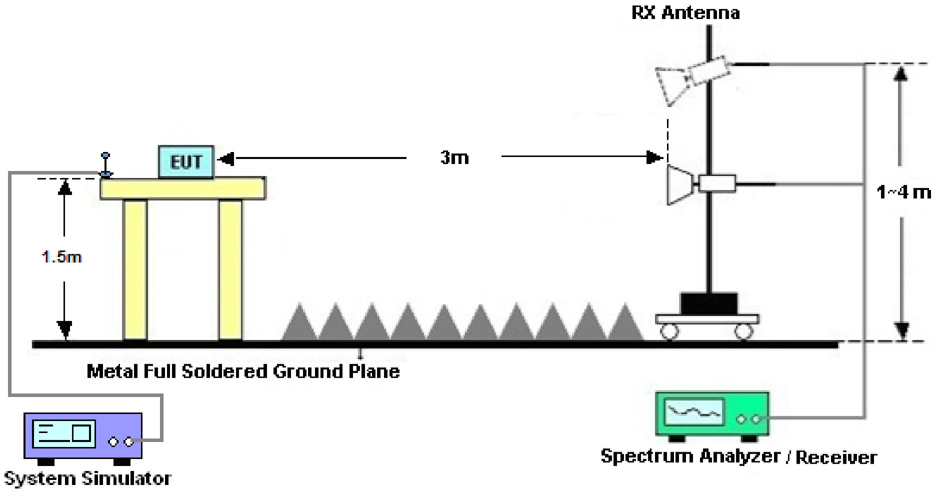
4.2.1 For radiated test below 30MHz



4.2.2 For radiated test from 30MHz to 1GHz



4.2.3 For radiated test above 1GHz



4.3 Test Result of Radiated Test

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

Please refer to Appendix B.

4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI C63.26. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.5
2. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
6. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
7. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
8. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
9. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
10. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
11. ERP (dBm) = EIRP - 2.15
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver&SA	Agilent	N9038A	MY52260185	20Hz~26.5GHz	Dec. 26, 2022	Feb. 05, 2023~ Feb. 14, 2023	Dec. 25, 2023	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04 265	60.06.020.007 7	0.4GHz~26.5GHz	Dec. 25, 2022	Feb. 05, 2023~ Feb. 14, 2023	Dec. 24, 2023	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 07, 2022	Feb. 05, 2023~ Feb. 14, 2023	Jul. 06, 2023	Conducted (TH01-SZ)
EMI Test Receiver&SA	Agilent	N9038A	MY52260185	20Hz~26.5GHz	Dec. 26, 2022	Feb. 10, 2023	Dec. 25, 2023	Radiation (03CH01-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jul. 28, 2022	Feb. 10, 2023	Jul. 27, 2024	Radiation (03CH01-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270105	0.5GHz~26.5Ghz	Oct. 19, 2022	Feb. 10, 2023	Oct. 18, 2023	Radiation (03CH01-SZ
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz-2GHz	Sep. 28, 2022	Feb. 10, 2023	Sep. 27, 2023	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Jul. 07, 2022	Feb. 10, 2023	Jul. 06, 2023	Radiation (03CH01-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Apr. 10, 2022	Feb. 10, 2023	Apr. 09, 2023	Radiation (03CH01-SZ)
LF Amplifier	Burgeon	BPA-530	102209	0.01~3000Mhz	Apr. 06, 2022	Feb. 10, 2023	Apr. 05, 2023	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	AMF-7D-00 101800-30-1 0P-R	1943528	1GHz~18GHz	Oct. 19, 2022	Feb. 10, 2023	Oct. 18, 2023	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	TTA1840-35 -HG	1871923	18GHz~40GHz	Jul. 06, 2022	Feb. 10, 2023	Jul. 05, 2023	Radiation (03CH01-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	Nov. 10, 2022	Feb. 10, 2023	Nov. 09, 2023	Radiation (03CH01-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Feb. 10, 2023	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Feb. 10, 2023	NCR	Radiation (03CH01-SZ)

NCR: No Calibration Required

6 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Measurement

Test Item	Uncertainty
Conducted Power	**±1.34 dB**
Conducted Emissions	**±1.34 dB**
Occupied Channel Bandwidth	**±0.13 %**

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.48dB**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.53dB**

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.02dB**

----------- THE END -----------

Appendix A. Test Results of Conducted Test

Test Engineer :	Jung Kuo	**Temperature :**	22~23℃
		Relative Humidity :	40~42%

FR1 N77-Ant 8

Transmitter Conducted Output Power And EIRP, (G_T - L_C)=2.51dB for Ant 9

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Conducted Power(dBm)	EIRP (dBm)	EIRP (W)
77	30	20	647334	3710.01	DFT-s-OFDM QPSK	1@1	25.92	28.43	0.6966
77	30	20	647334	3710.01	DFT-s-OFDM 16 QAM	1@1	24.91	27.42	0.5521
77	30	20	656000	3840	DFT-s-OFDM QPSK	1@1	25.71	28.22	0.6637
77	30	20	656000	3840	DFT-s-OFDM 16 QAM	1@1	24.72	27.23	0.5284
77	30	20	664666	3969.99	DFT-s-OFDM QPSK	1@1	25.16	27.67	0.5848
77	30	20	664666	3969.99	DFT-s-OFDM 16 QAM	1@1	24.24	26.75	0.4732
77	30	30	647668	3715.02	DFT-s-OFDM QPSK	1@1	25.91	28.42	0.6950
77	30	30	647668	3715.02	DFT-s-OFDM 16 QAM	1@1	24.93	27.44	0.5546
77	30	30	656000	3840	DFT-s-OFDM QPSK	1@1	25.74	28.25	0.6683
77	30	30	656000	3840	DFT-s-OFDM 16 QAM	1@1	24.8	27.31	0.5383
77	30	30	664332	3964.98	DFT-s-OFDM QPSK	1@1	25.21	27.72	0.5916
77	30	30	664332	3964.98	DFT-s-OFDM 16 QAM	1@1	24.22	26.73	0.4710
77	30	40	648000	3720	DFT-s-OFDM QPSK	1@1	26.04	28.55	0.7161
77	30	40	648000	3720	DFT-s-OFDM 16 QAM	1@1	25.03	27.54	0.5675
77	30	40	656000	3840	DFT-s-OFDM QPSK	1@1	25.85	28.36	0.6855
77	30	40	656000	3840	DFT-s-OFDM 16 QAM	1@1	24.92	27.43	0.5534
77	30	40	664000	3960	DFT-s-OFDM QPSK	1@1	25.38	27.89	0.6152
77	30	40	664000	3960	DFT-s-OFDM 16 QAM	1@1	24.4	26.91	0.4909
77	30	50	648334	3725.01	DFT-s-OFDM QPSK	1@1	25.83	28.34	0.6823
77	30	50	648334	3725.01	DFT-s-OFDM 16 QAM	1@1	24.77	27.28	0.5346
77	30	50	656000	3840	DFT-s-OFDM QPSK	1@1	25.76	28.27	0.6714
77	30	50	656000	3840	DFT-s-OFDM 16 QAM	1@1	24.7	27.21	0.5260
77	30	50	663666	3954.99	DFT-s-OFDM QPSK	1@1	25.4	27.91	0.6180
77	30	50	663666	3954.99	DFT-s-OFDM 16 QAM	1@1	24.45	26.96	0.4966
77	30	60	648668	3730.02	DFT-s-OFDM QPSK	1@1	25.61	28.12	0.6486
77	30	60	648668	3730.02	DFT-s-OFDM 16 QAM	1@1	24.69	27.2	0.5248
77	30	60	656000	3840	DFT-s-OFDM QPSK	1@1	25.6	28.11	0.6471
77	30	60	656000	3840	DFT-s-OFDM 16 QAM	1@1	24.71	27.22	0.5272

77	30	60	663332	3949.98	DFT-s-OFDM QPSK	1@1	25.27	27.78	0.5998
77	30	60	663332	3949.98	DFT-s-OFDM 16 QAM	1@1	24.15	26.66	0.4634
77	30	80	649334	3740.01	DFT-s-OFDM QPSK	1@1	25.45	27.96	0.6252
77	30	80	649334	3740.01	DFT-s-OFDM 16 QAM	1@1	24.46	26.97	0.4977
77	30	80	656000	3840	DFT-s-OFDM QPSK	1@1	25.47	27.98	0.6281
77	30	80	656000	3840	DFT-s-OFDM 16 QAM	1@1	24.51	27.02	0.5035
77	30	80	662666	3939.99	DFT-s-OFDM QPSK	1@1	25.2	27.71	0.5902
77	30	80	662666	3939.99	DFT-s-OFDM 16 QAM	1@1	24.22	26.73	0.4710
77	30	90	649668	3745.02	DFT-s-OFDM QPSK	1@1	25.51	28.02	0.6339
77	30	90	649668	3745.02	DFT-s-OFDM 16 QAM	1@1	24.62	27.13	0.5164
77	30	90	656000	3840	DFT-s-OFDM QPSK	1@1	25.35	27.86	0.6109
77	30	90	656000	3840	DFT-s-OFDM 16 QAM	1@1	24.42	26.93	0.4932
77	30	90	662332	3934.98	DFT-s-OFDM QPSK	1@1	25.4	27.91	0.6180
77	30	90	662332	3934.98	DFT-s-OFDM 16 QAM	1@1	24.46	26.97	0.4977
77	30	100	650000	3750	DFT-s-OFDM PI/2 BPSK	135@67	25.95	28.46	0.7015
77	30	100	650000	3750	DFT-s-OFDM PI/2 BPSK	1@1	25.79	28.3	0.6761
77	30	100	650000	3750	DFT-s-OFDM PI/2 BPSK	1@271	26.04	28.55	0.7161
77	30	100	650000	3750	DFT-s-OFDM QPSK	135@67	26.04	28.55	0.7161
77	30	100	650000	3750	DFT-s-OFDM QPSK	1@1	25.82	28.33	0.6808
77	30	100	650000	3750	DFT-s-OFDM QPSK	1@271	26.05	28.56	0.7178
77	30	100	650000	3750	DFT-s-OFDM 16 QAM	135@67	24.97	27.48	0.5598
77	30	100	650000	3750	DFT-s-OFDM 16 QAM	1@1	24.85	27.36	0.5445
77	30	100	650000	3750	DFT-s-OFDM 16 QAM	1@271	25.11	27.62	0.5781
77	30	100	650000	3750	DFT-s-OFDM 64 QAM	135@67	23.5	26.01	0.3990
77	30	100	650000	3750	DFT-s-OFDM 64 QAM	1@1	23.29	25.8	0.3802
77	30	100	650000	3750	DFT-s-OFDM 64 QAM	1@271	23.58	26.09	0.4064
77	30	100	650000	3750	DFT-s-OFDM 256 QAM	135@67	21.41	23.92	0.2466
77	30	100	650000	3750	DFT-s-OFDM 256 QAM	1@1	21.11	23.62	0.2301
77	30	100	650000	3750	DFT-s-OFDM 256 QAM	1@271	21.44	23.95	0.2483
77	30	100	650000	3750	CP-OFDM QPSK	137@68	24.41	26.92	0.4920
77	30	100	650000	3750	CP-OFDM QPSK	1@1	24.3	26.81	0.4797
77	30	100	650000	3750	CP-OFDM QPSK	1@271	24.42	26.93	0.4932
77	30	100	656000	3840	DFT-s-OFDM PI/2 BPSK	135@67	25.75	28.26	0.6699
77	30	100	656000	3840	DFT-s-OFDM PI/2 BPSK	1@1	25.59	28.1	0.6457
77	30	100	656000	3840	DFT-s-OFDM PI/2 BPSK	1@271	25.32	27.83	0.6067

77	30	100	656000	3840	DFT-s-OFDM QPSK	135@67	25.69	28.2	0.6607
77	30	100	656000	3840	DFT-s-OFDM QPSK	1@1	25.64	28.15	0.6531
77	30	100	656000	3840	DFT-s-OFDM QPSK	1@271	25.23	27.74	0.5943
77	30	100	656000	3840	DFT-s-OFDM 16 QAM	135@67	24.63	27.14	0.5176
77	30	100	656000	3840	DFT-s-OFDM 16 QAM	1@1	24.67	27.18	0.5224
77	30	100	656000	3840	DFT-s-OFDM 16 QAM	1@271	24.33	26.84	0.4831
77	30	100	656000	3840	DFT-s-OFDM 64 QAM	135@67	23.14	25.65	0.3673
77	30	100	656000	3840	DFT-s-OFDM 64 QAM	1@1	23.13	25.64	0.3664
77	30	100	656000	3840	DFT-s-OFDM 64 QAM	1@271	22.86	25.37	0.3443
77	30	100	656000	3840	DFT-s-OFDM 256 QAM	135@67	21.15	23.66	0.2323
77	30	100	656000	3840	DFT-s-OFDM 256 QAM	1@1	21.07	23.58	0.2280
77	30	100	656000	3840	DFT-s-OFDM 256 QAM	1@271	20.67	23.18	0.2080
77	30	100	656000	3840	CP-OFDM QPSK	137@68	24.04	26.55	0.4519
77	30	100	656000	3840	CP-OFDM QPSK	1@1	24	26.51	0.4477
77	30	100	656000	3840	CP-OFDM QPSK	1@271	23.87	26.38	0.4345
77	30	100	662000	3930	DFT-s-OFDM PI/2 BPSK	135@67	25.54	28.05	0.6383
77	30	100	662000	3930	DFT-s-OFDM PI/2 BPSK	1@1	25.62	28.13	0.6501
77	30	100	662000	3930	DFT-s-OFDM PI/2 BPSK	1@271	25.39	27.9	0.6166
77	30	100	662000	3930	DFT-s-OFDM QPSK	135@67	25.45	27.96	0.6252
77	30	100	662000	3930	DFT-s-OFDM QPSK	1@1	25.57	28.08	0.6427
77	30	100	662000	3930	DFT-s-OFDM QPSK	1@271	25.22	27.73	0.5929
77	30	100	662000	3930	DFT-s-OFDM 16 QAM	135@67	24.5	27.01	0.5023
77	30	100	662000	3930	DFT-s-OFDM 16 QAM	1@1	24.64	27.15	0.5188
77	30	100	662000	3930	DFT-s-OFDM 16 QAM	1@271	24.3	26.81	0.4797
77	30	100	662000	3930	DFT-s-OFDM 64 QAM	135@67	22.96	25.47	0.3524
77	30	100	662000	3930	DFT-s-OFDM 64 QAM	1@1	23.11	25.62	0.3648
77	30	100	662000	3930	DFT-s-OFDM 64 QAM	1@271	23.04	25.55	0.3589
77	30	100	662000	3930	DFT-s-OFDM 256 QAM	135@67	21	23.51	0.2244
77	30	100	662000	3930	DFT-s-OFDM 256 QAM	1@1	20.85	23.36	0.2168
77	30	100	662000	3930	DFT-s-OFDM 256 QAM	1@271	21.12	23.63	0.2307
77	30	100	662000	3930	CP-OFDM QPSK	137@68	23.93	26.44	0.4406
77	30	100	662000	3930	CP-OFDM QPSK	1@1	24.06	26.57	0.4539
77	30	100	662000	3930	CP-OFDM QPSK	1@271	23.59	26.1	0.4074

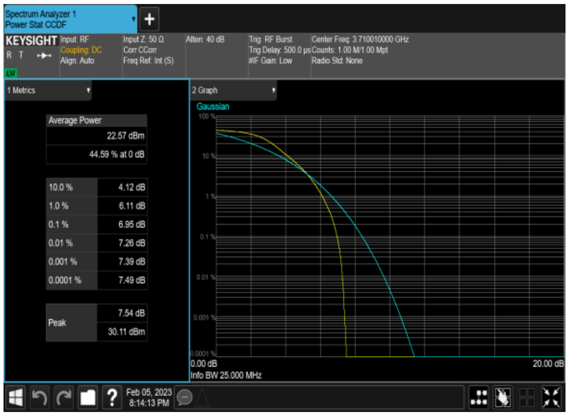
Frequency Stability

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Deviation (ppm)	Verdict	Environment
77	30	20	656000	3840.0	DFT-s-OFDM QPSK	50@0	0.0038	**PASS**	NV
77	30	20	656000	3840.0	DFT-s-OFDM QPSK	50@0	0.0036	**PASS**	LV
77	30	20	656000	3840.0	DFT-s-OFDM QPSK	50@0	0.0062	**PASS**	HV
77	30	20	656000	3840.0	DFT-s-OFDM QPSK	50@0	0.0057	**PASS**	-10℃
77	30	20	656000	3840.0	DFT-s-OFDM QPSK	50@0	0.0045	**PASS**	0℃
77	30	20	656000	3840.0	DFT-s-OFDM QPSK	50@0	0.0052	**PASS**	10℃
77	30	20	656000	3840.0	DFT-s-OFDM QPSK	50@0	0.0038	**PASS**	20℃
77	30	20	656000	3840.0	DFT-s-OFDM QPSK	50@0	0.0054	**PASS**	30℃
77	30	20	656000	3840.0	DFT-s-OFDM QPSK	50@0	0.0035	**PASS**	40℃
77	30	20	656000	3840.0	DFT-s-OFDM QPSK	50@0	0.0036	**PASS**	50℃

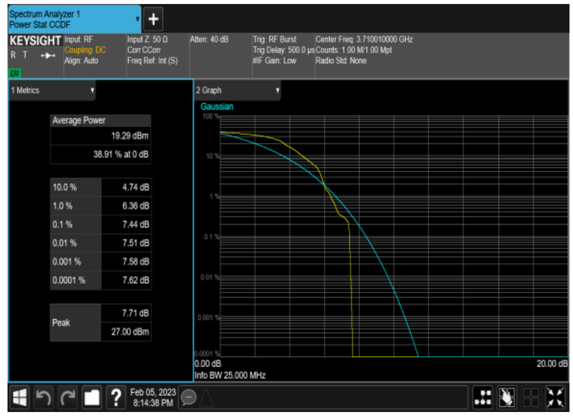
Peak to Average Ratio

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
77	30	20	647334	3710.01	DFT-s-OFDM PI/2 BPSK	50@0	6.95	13	**PASS**
77	30	20	647334	3710.01	DFT-s-OFDM PI/2 BPSK	1@0	7.44	13	**PASS**
77	30	20	647334	3710.01	DFT-s-OFDM QPSK	50@0	7.64	13	**PASS**
77	30	20	647334	3710.01	DFT-s-OFDM QPSK	1@0	6.92	13	**PASS**
77	30	20	656000	3840.0	DFT-s-OFDM PI/2 BPSK	50@0	6.86	13	**PASS**
77	30	20	656000	3840.0	DFT-s-OFDM PI/2 BPSK	1@0	7.37	13	**PASS**
77	30	20	656000	3840.0	DFT-s-OFDM QPSK	50@0	7.57	13	**PASS**
77	30	20	656000	3840.0	DFT-s-OFDM QPSK	1@0	7.62	13	**PASS**
77	30	20	664666	3969.99	DFT-s-OFDM PI/2 BPSK	50@0	6.94	13	**PASS**
77	30	20	664666	3969.99	DFT-s-OFDM PI/2 BPSK	1@0	7.43	13	**PASS**
77	30	20	664666	3969.99	DFT-s-OFDM QPSK	50@0	7.57	13	**PASS**
77	30	20	664666	3969.99	DFT-s-OFDM QPSK	1@0	6.96	13	**PASS**

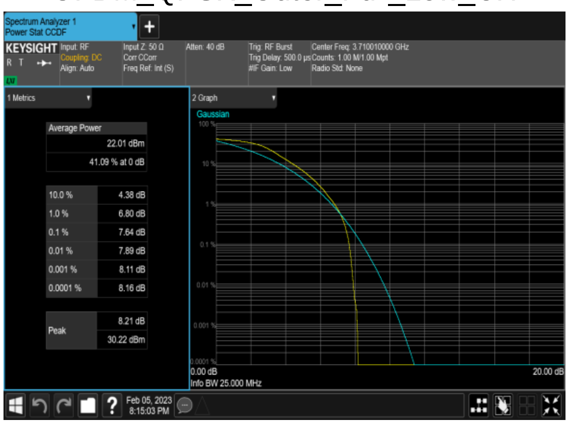
N77(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Low_CH



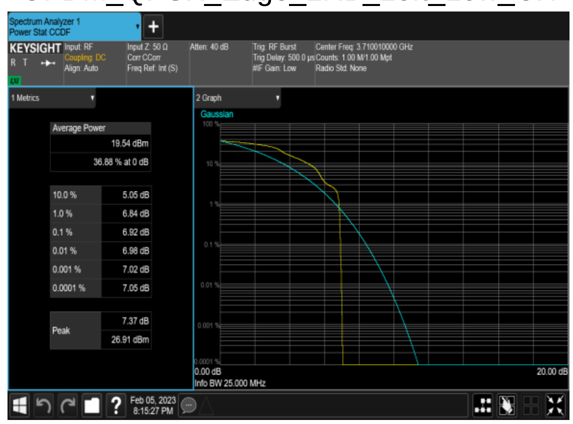
N77(20M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Low_CH



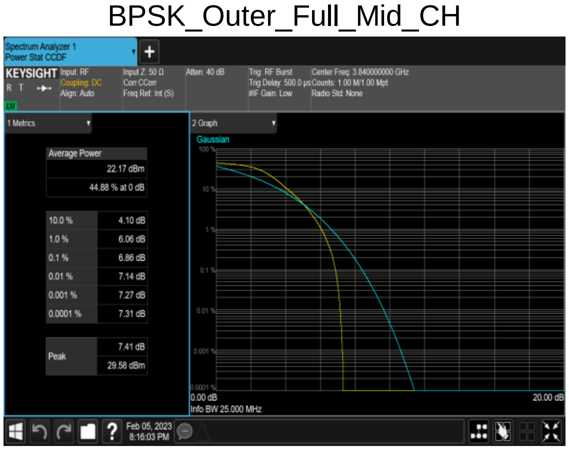
N77(20M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



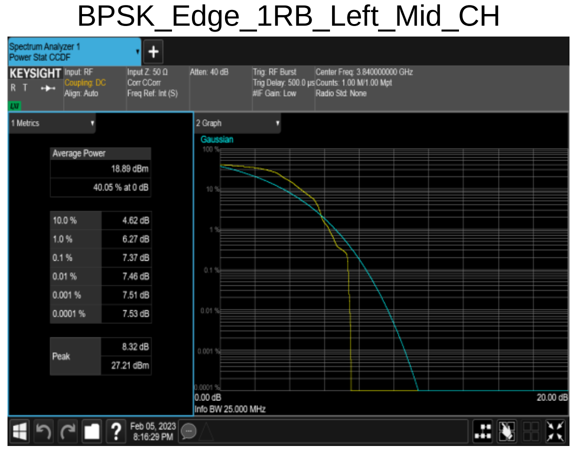
N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



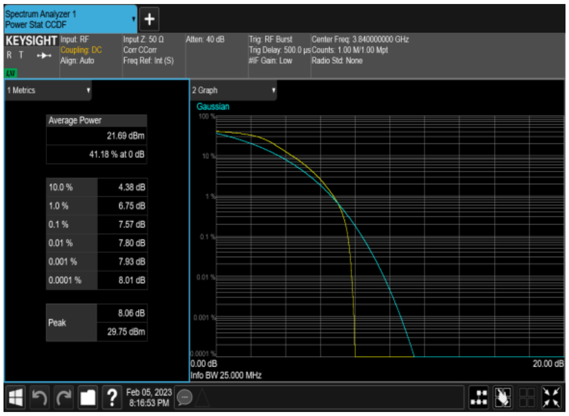
N77(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



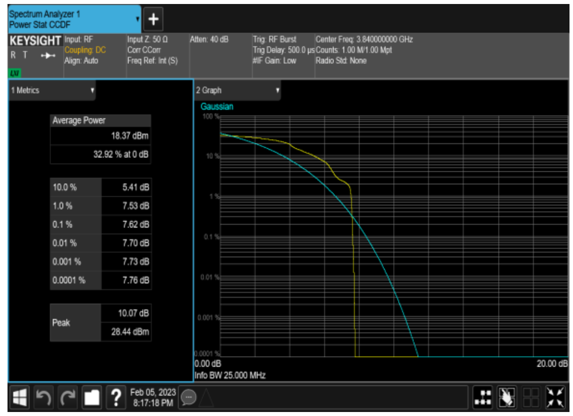
N77(20M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Mid_CH



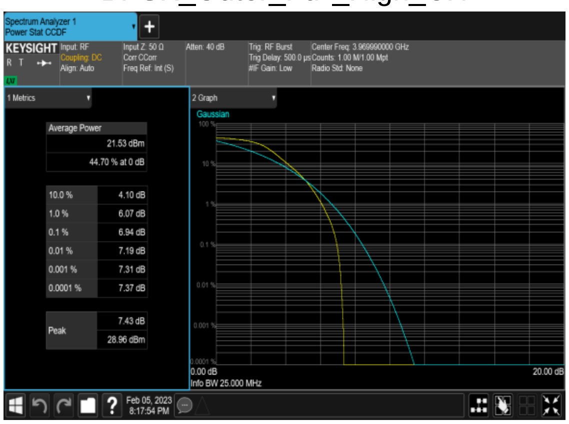
N77(20M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



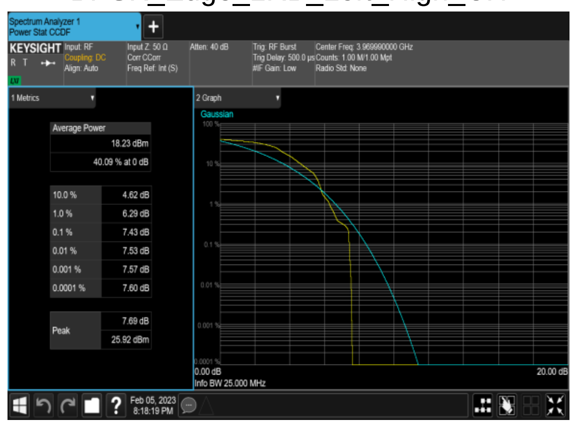
N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



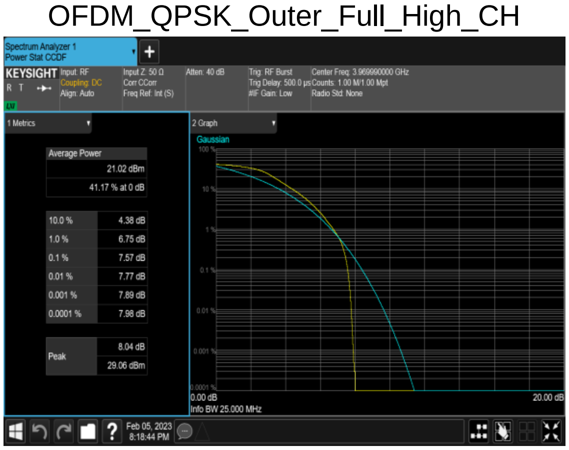
N77(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_High_CH



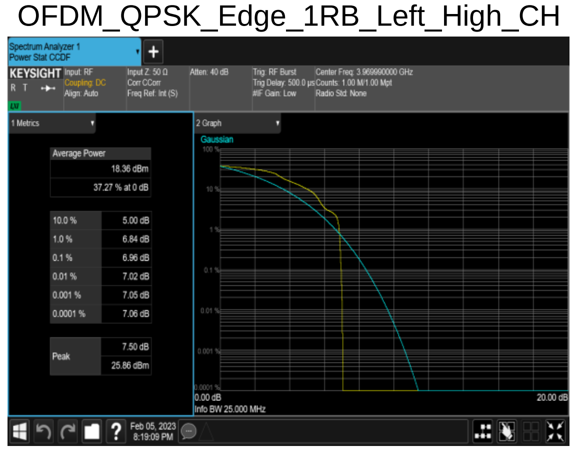
N77(20M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_High_CH



N77(20M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH

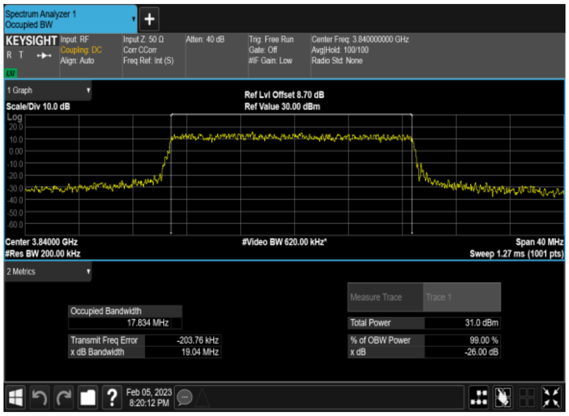


Occupied Bandwidth

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	OBW (MHz)	26dB BW (MHz)
77	30	20	656000	3840.0	DFT-s-OFDM PI/2 BPSK	50@0	17.834	19.04
77	30	20	656000	3840.0	DFT-s-OFDM QPSK	50@0	17.829	18.75
77	30	20	656000	3840.0	CP-OFDM QPSK	51@0	18.195	19.6
77	30	20	656000	3840.0	CP-OFDM 16 QAM	51@0	18.198	19.35
77	30	20	656000	3840.0	CP-OFDM 64 QAM	51@0	18.201	19.16
77	30	20	656000	3840.0	CP-OFDM 256 QAM	51@0	18.15	19.68
77	30	30	656000	3840.0	DFT-s-OFDM PI/2 BPSK	75@0	26.755	28.22
77	30	30	656000	3840.0	DFT-s-OFDM QPSK	75@0	26.775	28.03
77	30	30	656000	3840.0	CP-OFDM QPSK	78@0	27.849	29.01
77	30	30	656000	3840.0	CP-OFDM 16 QAM	78@0	27.836	28.99
77	30	30	656000	3840.0	CP-OFDM 64 QAM	78@0	27.813	29.14
77	30	30	656000	3840.0	CP-OFDM 256 QAM	78@0	27.746	29.46
77	30	40	656000	3840.0	DFT-s-OFDM PI/2 BPSK	100@0	35.671	36.96
77	30	40	656000	3840.0	DFT-s-OFDM QPSK	100@0	35.702	37.61
77	30	40	656000	3840.0	CP-OFDM QPSK	106@0	37.914	39.72
77	30	40	656000	3840.0	CP-OFDM 16 QAM	106@0	37.768	39.2
77	30	40	656000	3840.0	CP-OFDM 64 QAM	106@0	37.838	39.16
77	30	40	656000	3840.0	CP-OFDM 256 QAM	106@0	38.005	39.36
77	30	50	656000	3840.0	DFT-s-OFDM PI/2 BPSK	128@0	45.651	47.24
77	30	50	656000	3840.0	DFT-s-OFDM QPSK	128@0	45.762	47.53
77	30	50	656000	3840.0	CP-OFDM QPSK	133@0	47.389	49.31
77	30	50	656000	3840.0	CP-OFDM 16 QAM	133@0	47.467	49.1
77	30	50	656000	3840.0	CP-OFDM 64 QAM	133@0	47.445	49.06
77	30	50	656000	3840.0	CP-OFDM 256 QAM	133@0	47.528	48.98

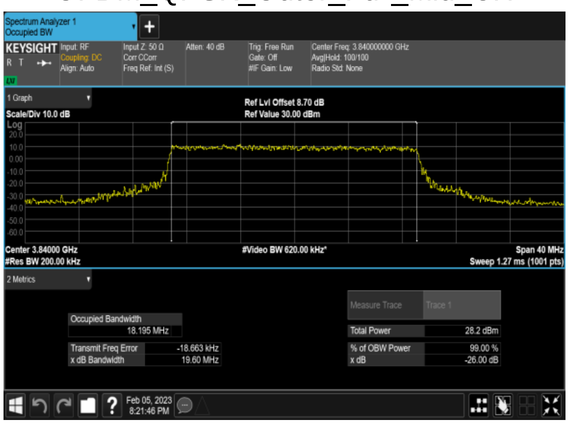
77	30	60	656000	3840.0	DFT-s-OFDM PI/2 BPSK	162@0	57.87	59.73
77	30	60	656000	3840.0	DFT-s-OFDM QPSK	162@0	57.918	59.91
77	30	60	656000	3840.0	CP-OFDM QPSK	162@0	57.865	59.78
77	30	60	656000	3840.0	CP-OFDM 16 QAM	162@0	57.963	59.8
77	30	60	656000	3840.0	CP-OFDM 64 QAM	162@0	57.823	59.76
77	30	60	656000	3840.0	CP-OFDM 256 QAM	162@0	57.893	60.05
77	30	80	656000	3840.0	DFT-s-OFDM PI/2 BPSK	216@0	77.18	79.75
77	30	80	656000	3840.0	DFT-s-OFDM QPSK	216@0	77.154	79.6
77	30	80	656000	3840.0	CP-OFDM QPSK	217@0	77.277	79.85
77	30	80	656000	3840.0	CP-OFDM 16 QAM	217@0	77.465	80.05
77	30	80	656000	3840.0	CP-OFDM 64 QAM	217@0	77.346	80.31
77	30	80	656000	3840.0	CP-OFDM 256 QAM	217@0	77.254	79.9
77	30	90	656000	3840.0	DFT-s-OFDM PI/2 BPSK	240@0	85.868	88.52
77	30	90	656000	3840.0	DFT-s-OFDM QPSK	240@0	85.785	88.34
77	30	90	656000	3840.0	CP-OFDM QPSK	245@0	87.473	90.55
77	30	90	656000	3840.0	CP-OFDM 16 QAM	245@0	87.482	90.34
77	30	90	656000	3840.0	CP-OFDM 64 QAM	245@0	87.531	90.38
77	30	90	656000	3840.0	CP-OFDM 256 QAM	245@0	87.322	90.82
77	30	100	656000	3840.0	DFT-s-OFDM PI/2 BPSK	270@0	96.513	99.51
77	30	100	656000	3840.0	DFT-s-OFDM QPSK	270@0	96.426	99.47
77	30	100	656000	3840.0	CP-OFDM QPSK	273@0	97.438	100.5
77	30	100	656000	3840.0	CP-OFDM 16 QAM	273@0	97.733	100.5
77	30	100	656000	3840.0	CP-OFDM 64 QAM	273@0	97.31	100.5
77	30	100	656000	3840.0	CP-OFDM 256 QAM	273@0	97.628	100.5

N77(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

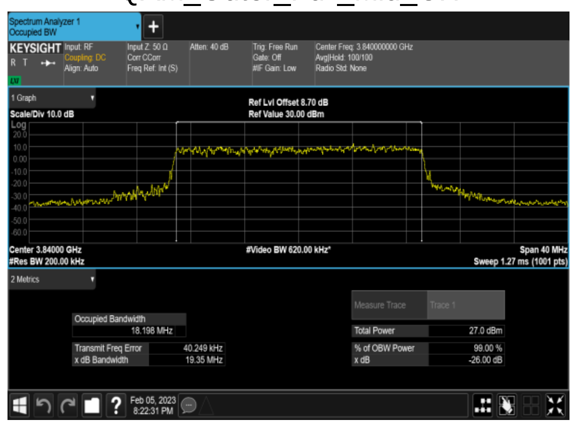


N77(20M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

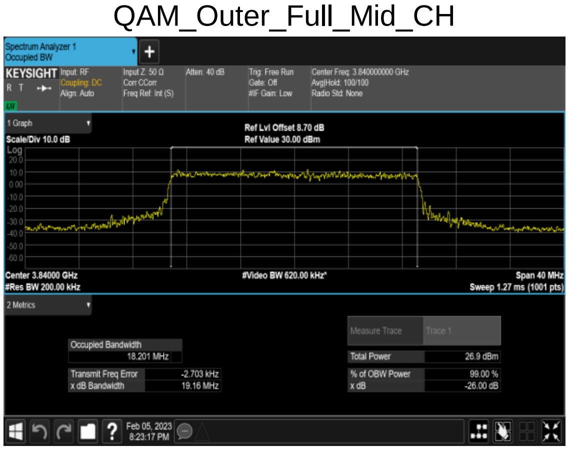
N77(20M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



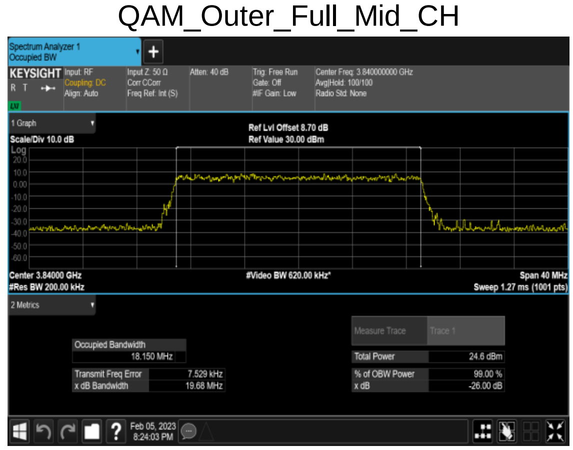
N77(20M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



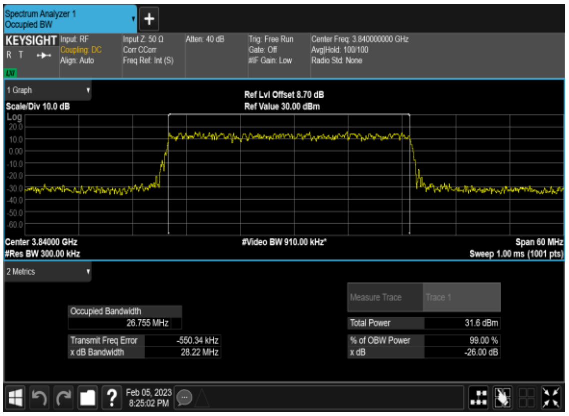
N77(20M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



N77(20M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

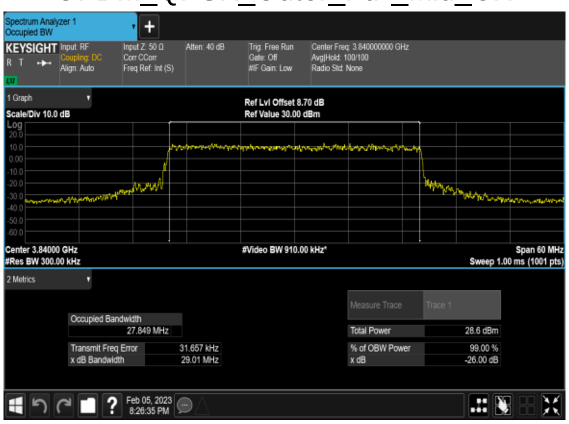


N77(30M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

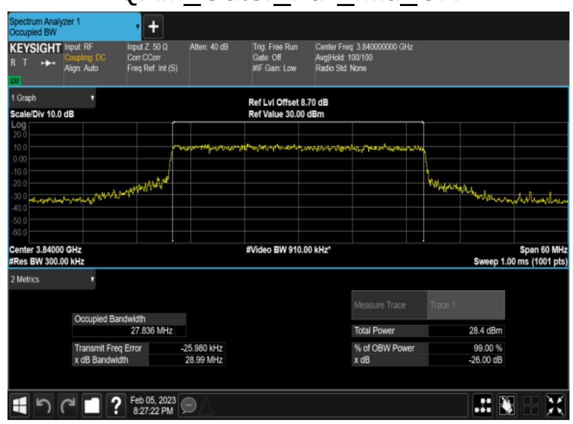


N77(30M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

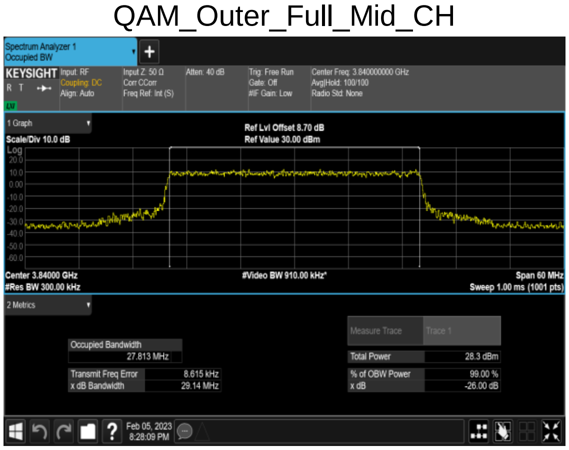
N77(30M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



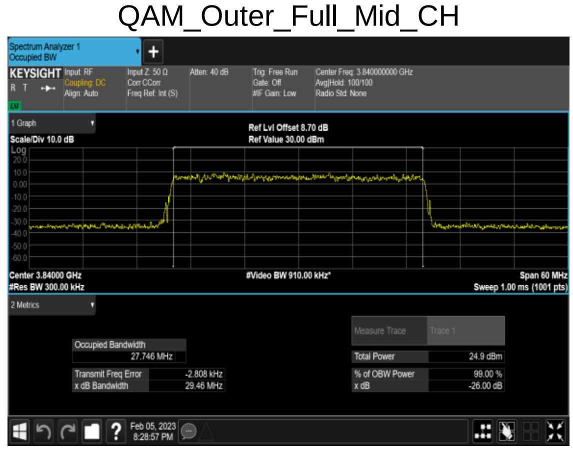
N77(30M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



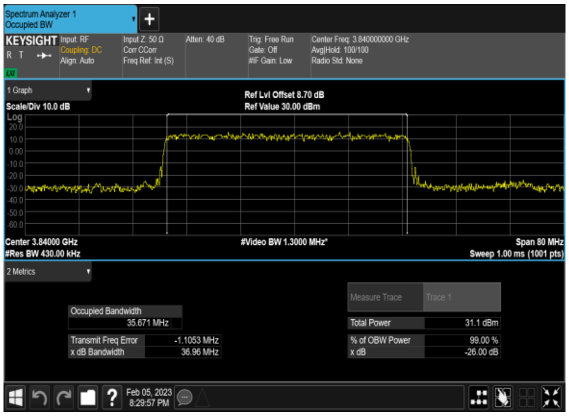
N77(30M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



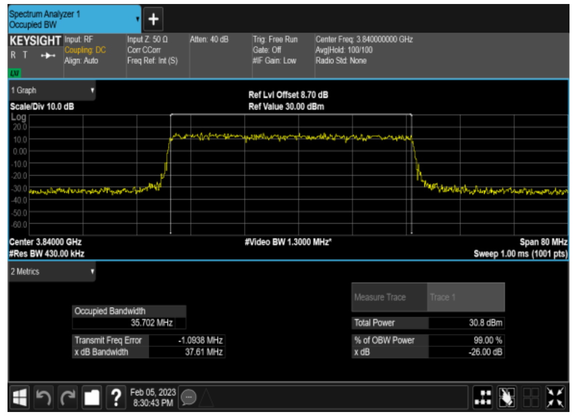
N77(30M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



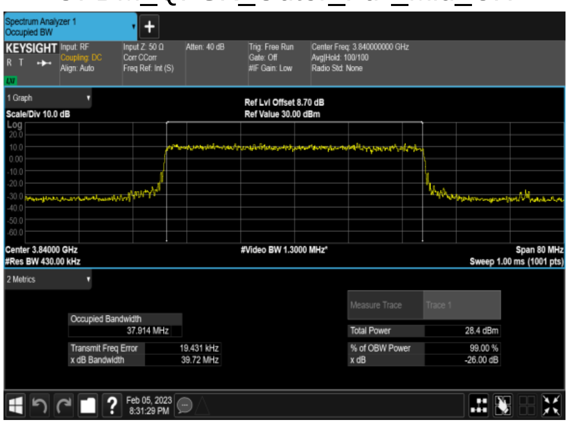
N77(40M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



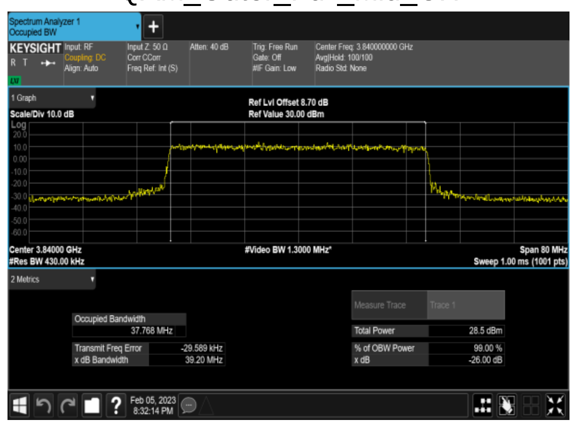
N77(40M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



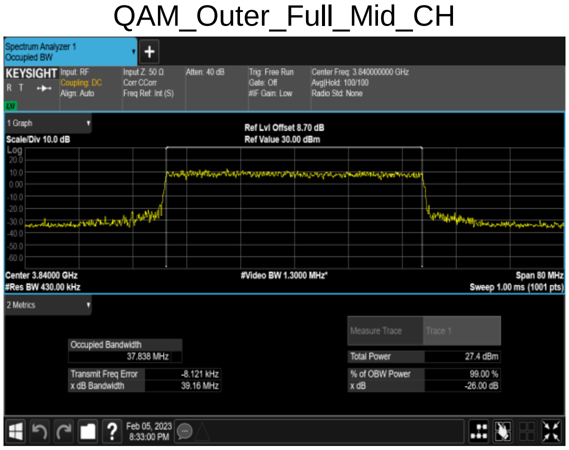
N77(40M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



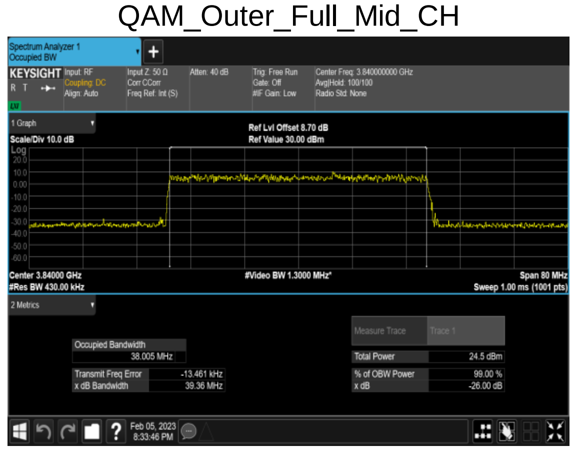
N77(40M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



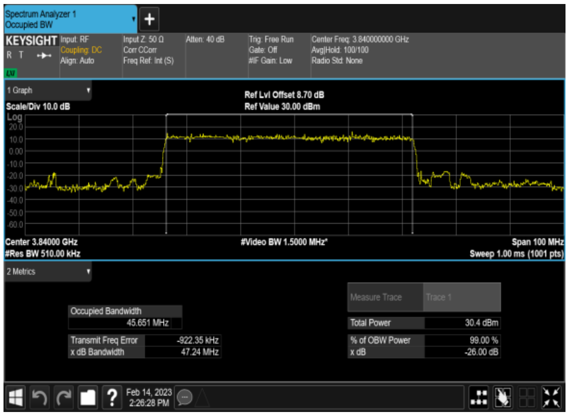
N77(40M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



N77(40M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

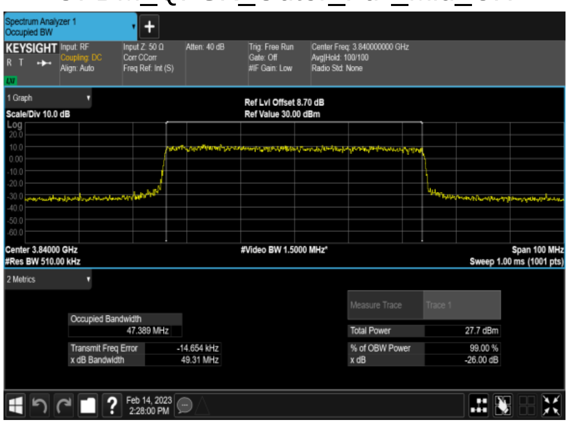


N77(50M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

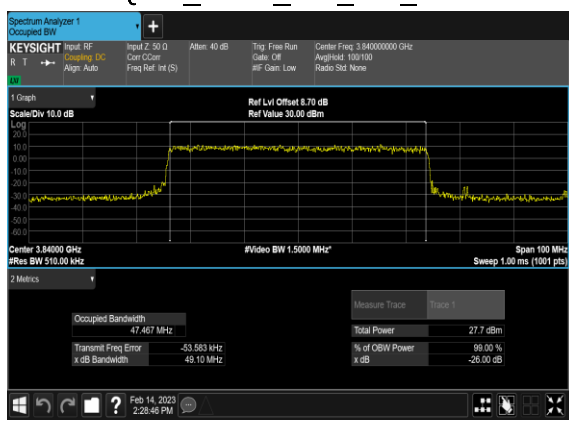


N77(50M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

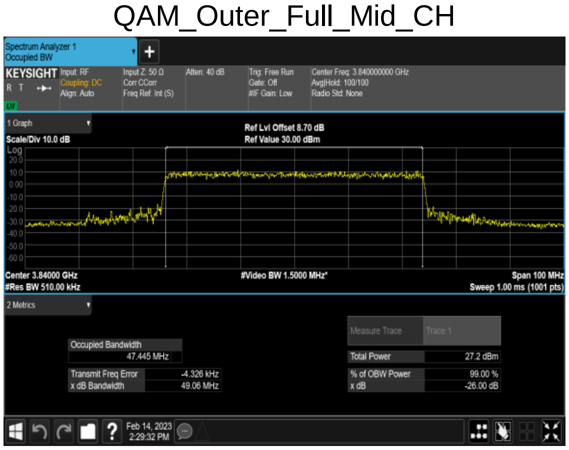
N77(50M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



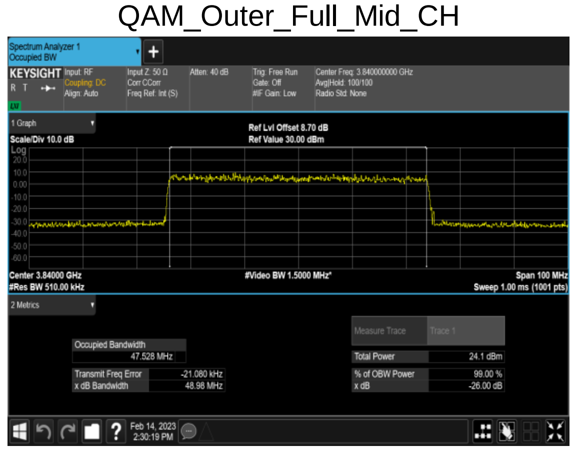
N77(50M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



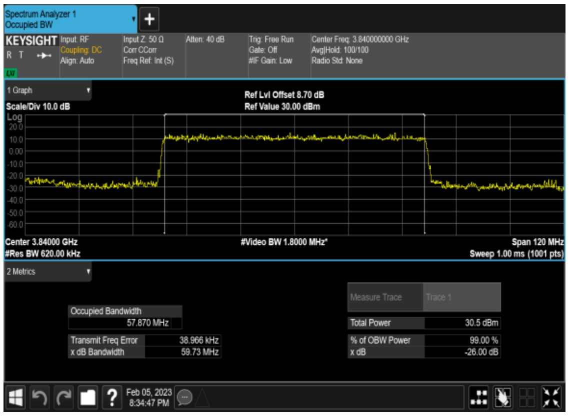
N77(50M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



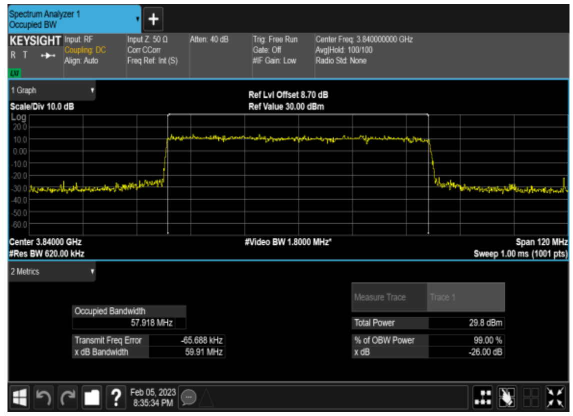
N77(50M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



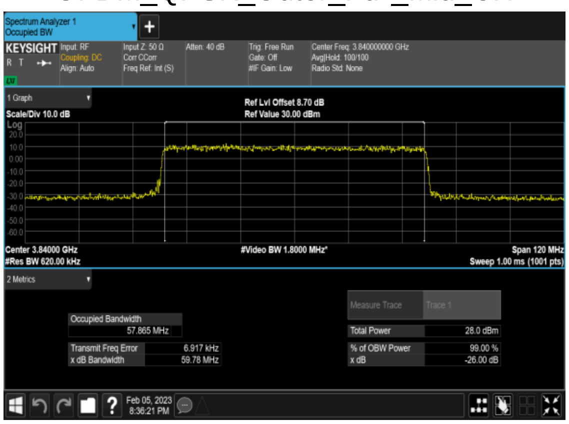
N77(60M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



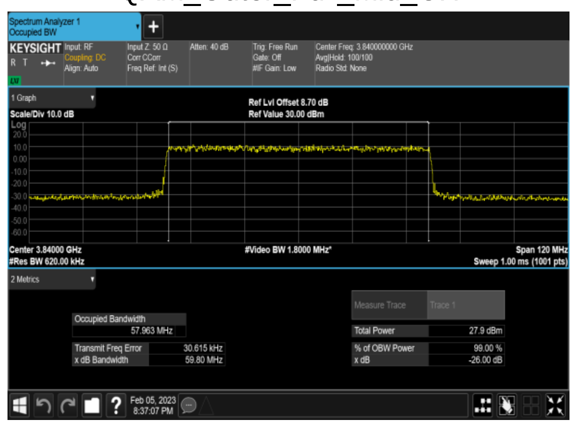
N77(60M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



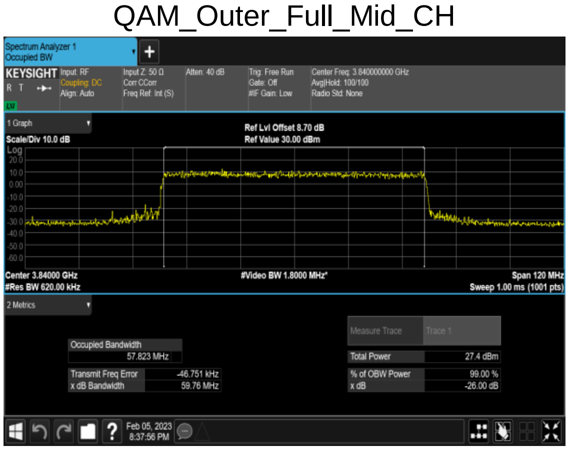
N77(60M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



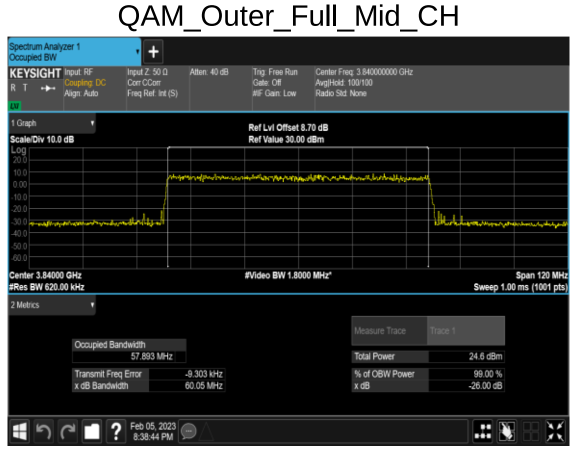
N77(60M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



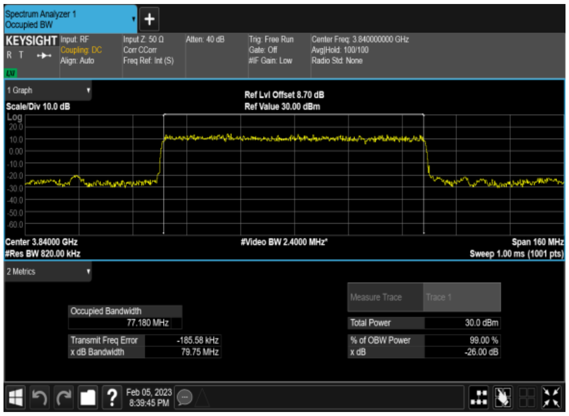
N77(60M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



N77(60M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

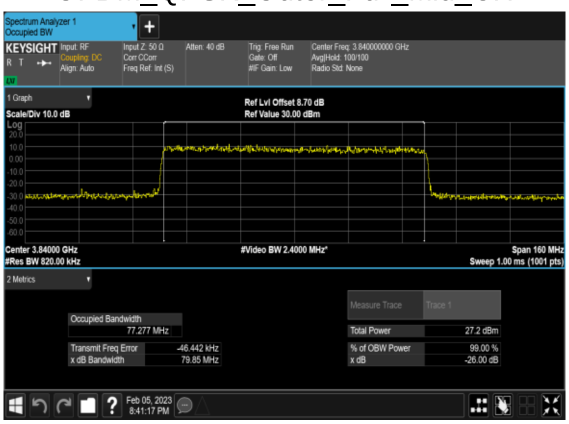


N77(80M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

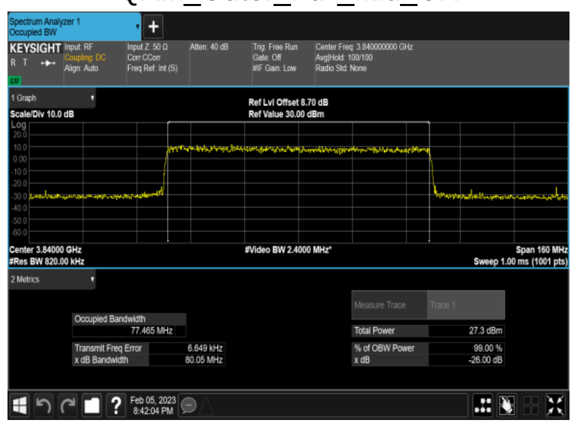


N77(80M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

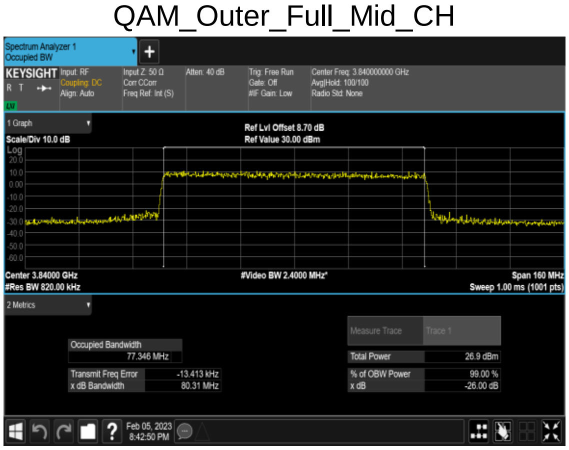
N77(80M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



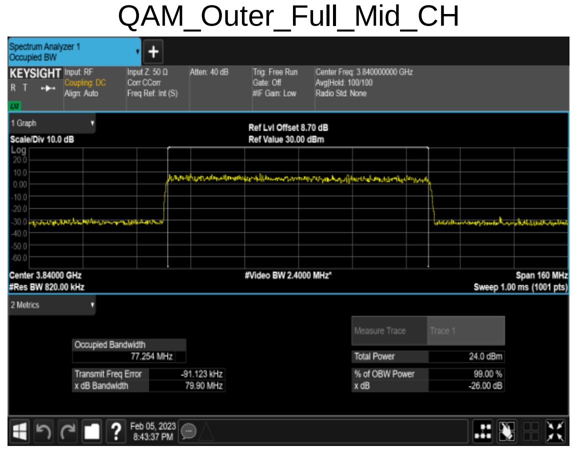
N77(80M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



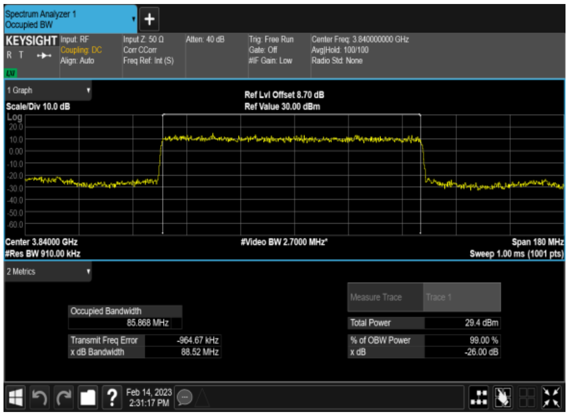
N77(80M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



N77(80M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



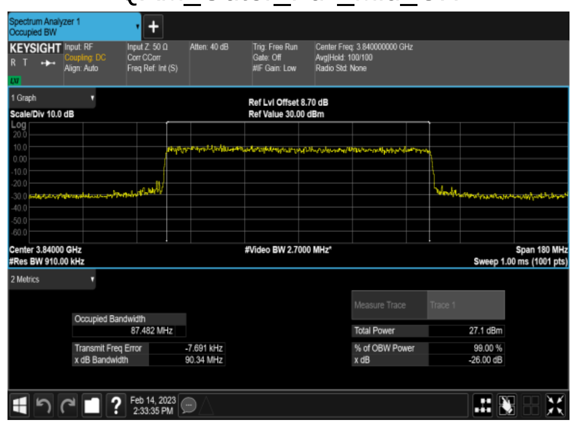
N77(90M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



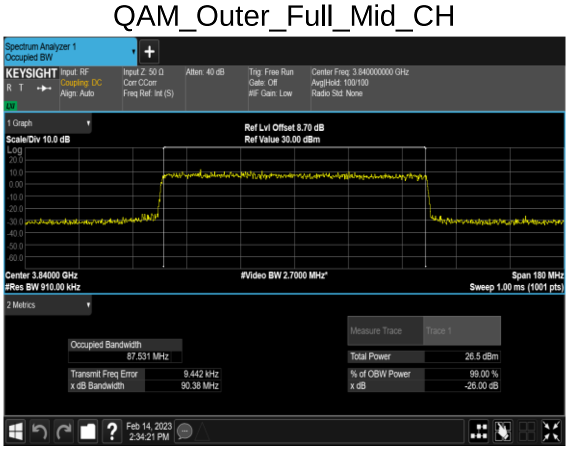
N77(90M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

N77(90M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

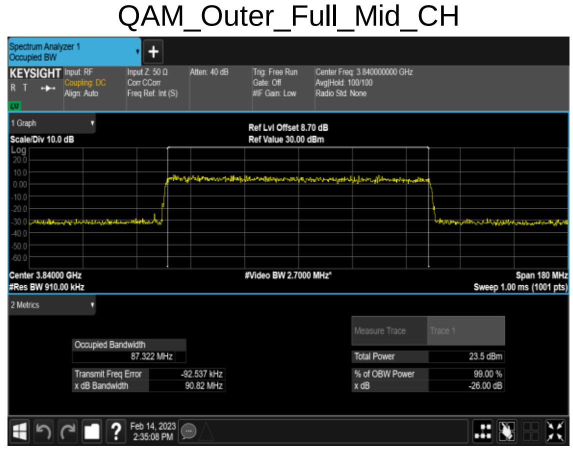
N77(90M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



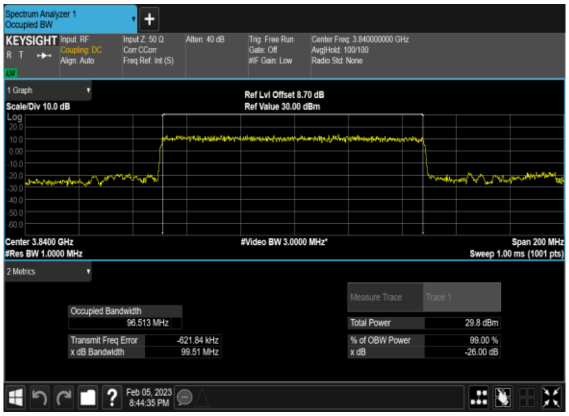
N77(90M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



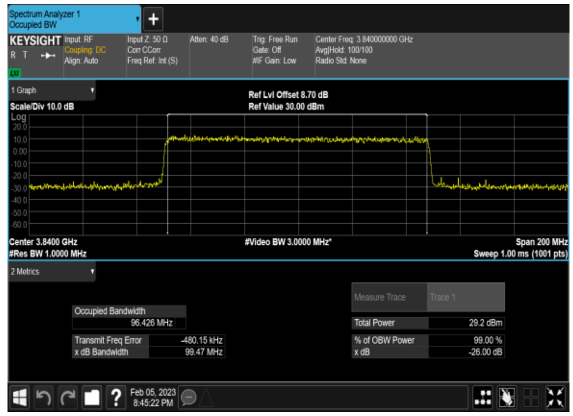
N77(90M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



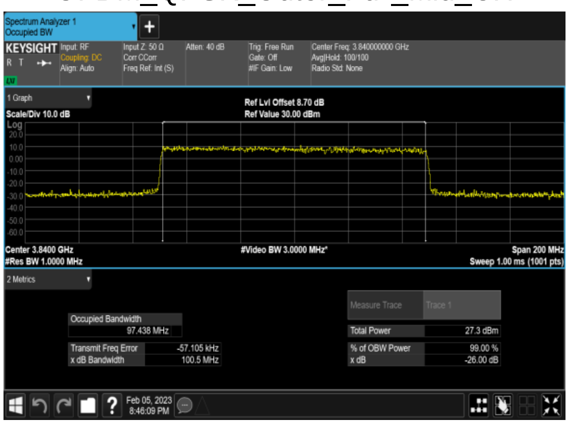
N77(100M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



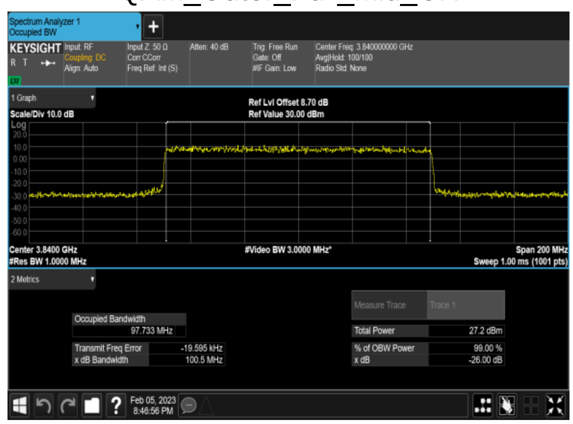
N77(100M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



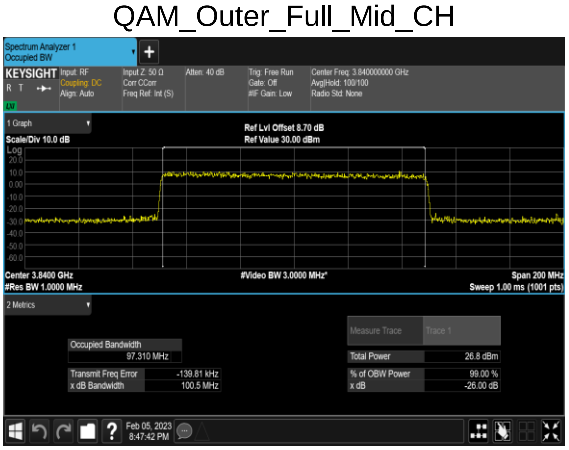
N77(100M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



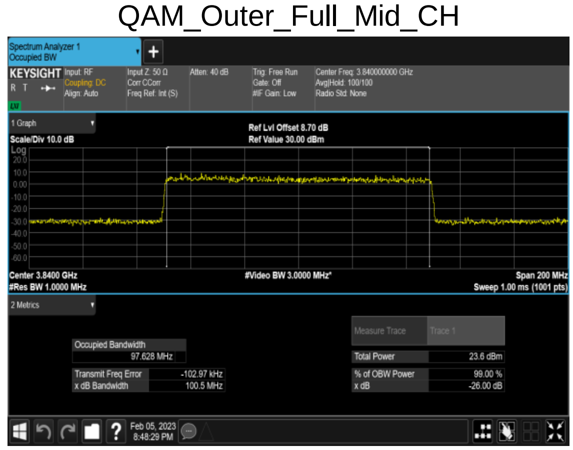
N77(100M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



N77(100M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



N77(100M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



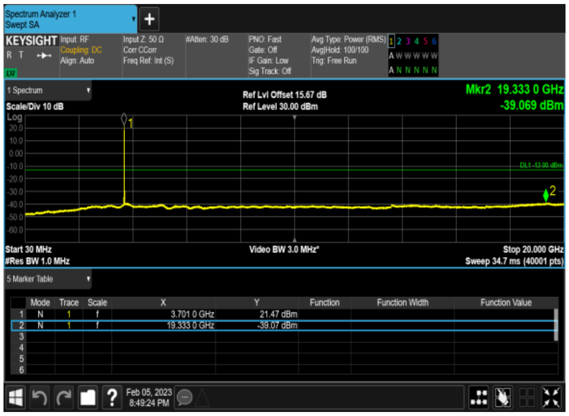
Conducted Spurious Emissions

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
77	30	20	647334	3710.01	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	30	20	647334	3710.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	20	647334	3710.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	20	647334	3710.01	DFT-s-OFDM QPSK	1@0	see graph	**---**
77	30	20	647334	3710.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	20	647334	3710.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	20	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	30	20	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	20	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	20	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**---**
77	30	20	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	20	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	20	664666	3969.99	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	30	20	664666	3969.99	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	20	664666	3969.99	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	20	664666	3969.99	DFT-s-OFDM QPSK	1@0	see graph	**---**
77	30	20	664666	3969.99	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	20	664666	3969.99	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	60	648668	3730.02	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	30	60	648668	3730.02	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	60	648668	3730.02	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	60	648668	3730.02	DFT-s-OFDM QPSK	1@0	see graph	**---**

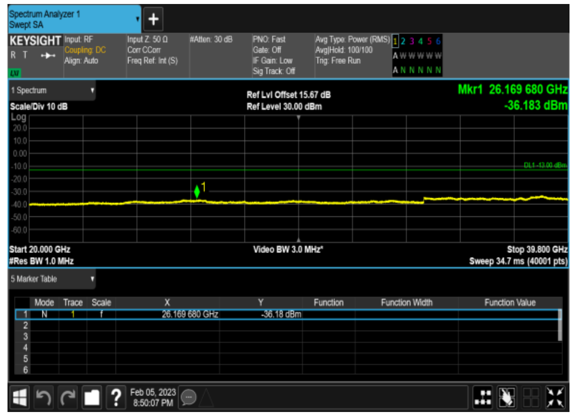
77	30	60	648668	3730.02	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	60	648668	3730.02	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	60	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	30	60	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	60	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	60	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**---**
77	30	60	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	60	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	60	663332	3949.98	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	30	60	663332	3949.98	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	60	663332	3949.98	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	60	663332	3949.98	DFT-s-OFDM QPSK	1@0	see graph	**---**
77	30	60	663332	3949.98	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	60	663332	3949.98	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	100	650000	3750.0	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	30	100	650000	3750.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	100	650000	3750.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	100	650000	3750.0	DFT-s-OFDM QPSK	1@0	see graph	**---**
77	30	100	650000	3750.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	100	650000	3750.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	100	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	30	100	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	100	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	100	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**---**

77	30	100	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	100	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	100	662000	3930.0	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	30	100	662000	3930.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	100	662000	3930.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	100	662000	3930.0	DFT-s-OFDM QPSK	1@0	see graph	**---**
77	30	100	662000	3930.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	100	662000	3930.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**

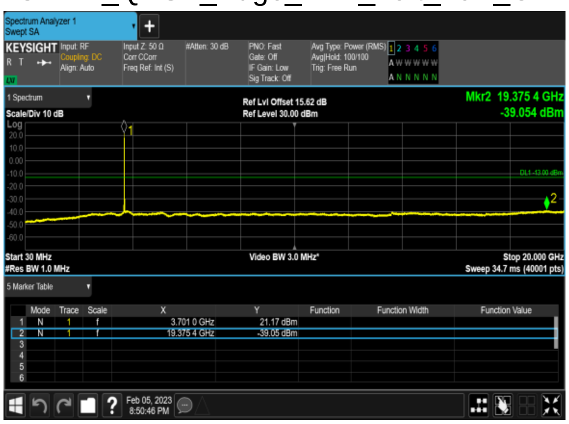
N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



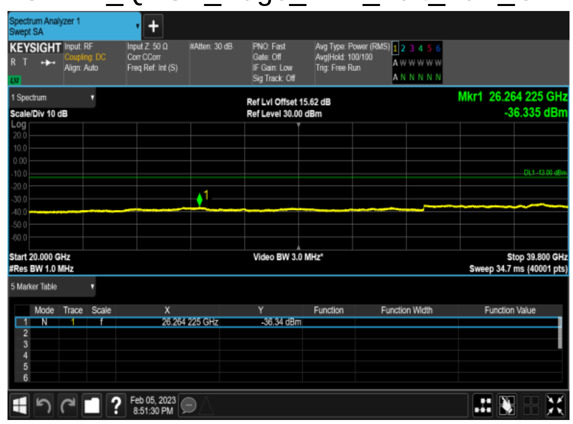
N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



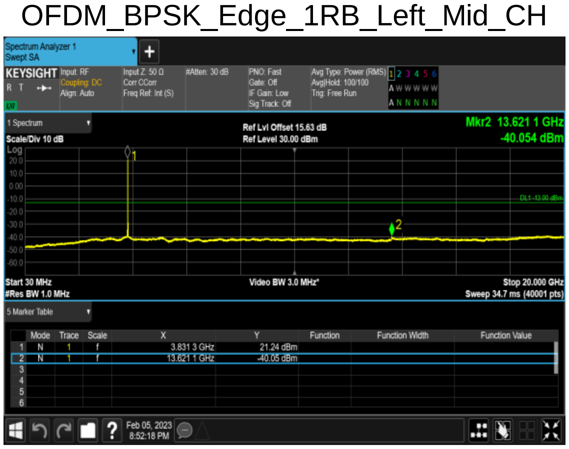
N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



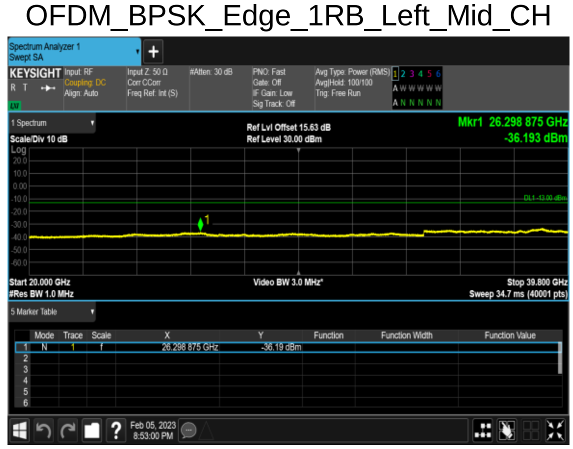
N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



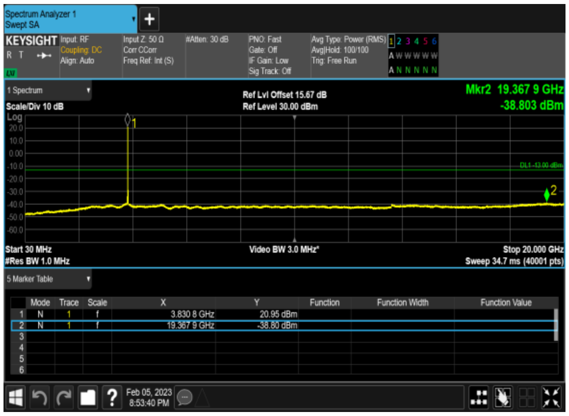
N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



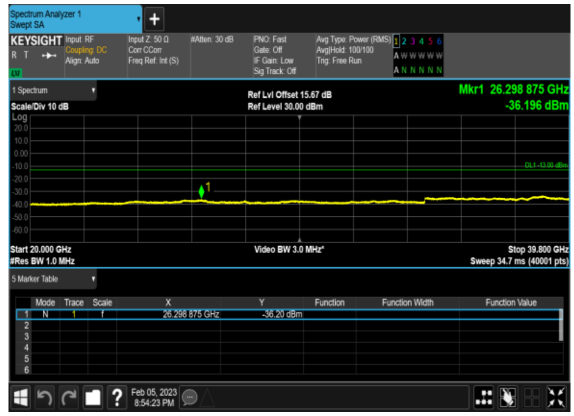
N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



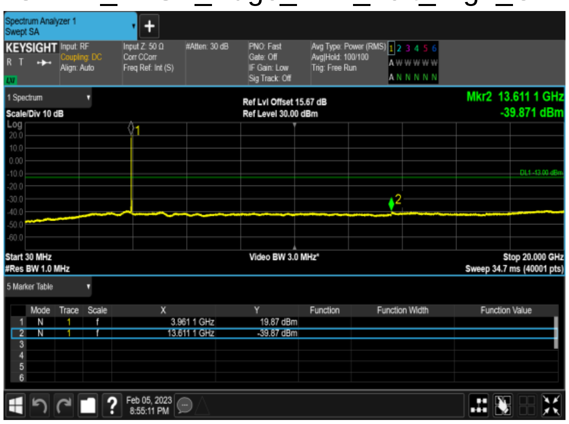
N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



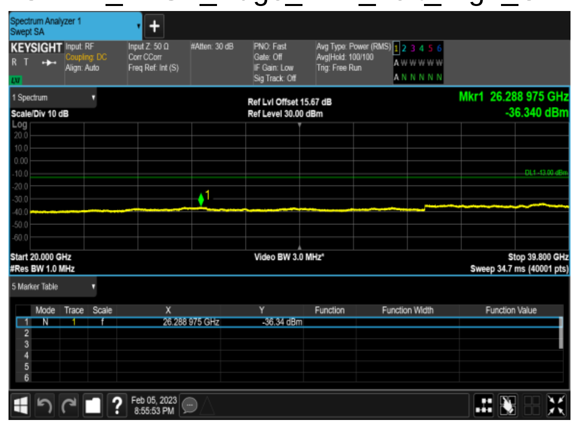
N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



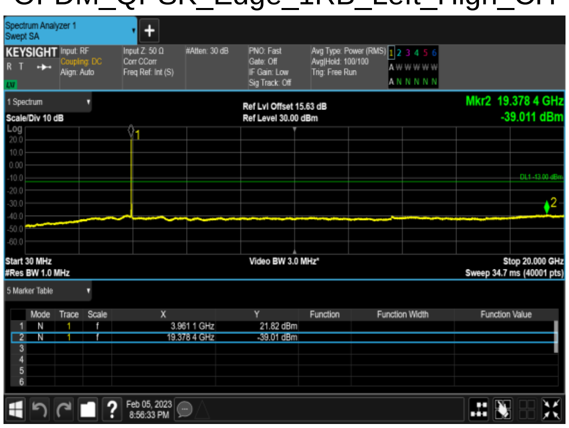
N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



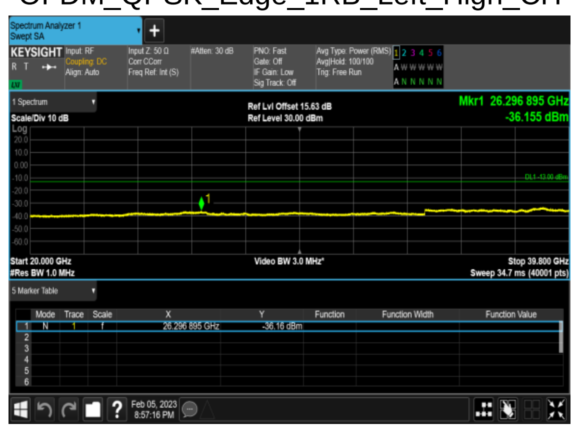
N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



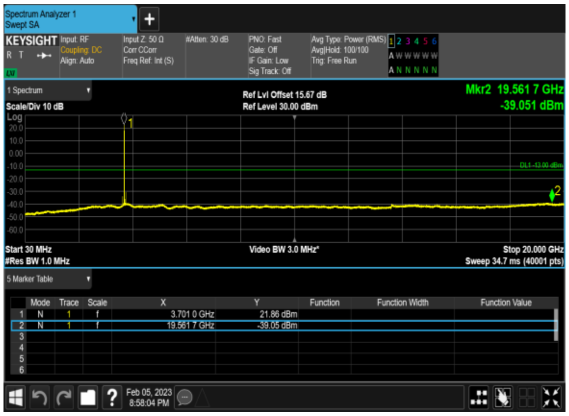
N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



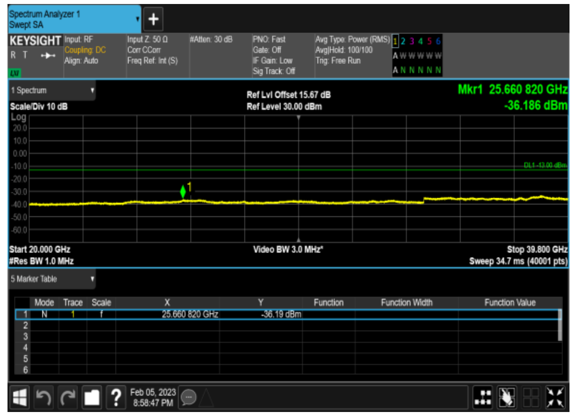
N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



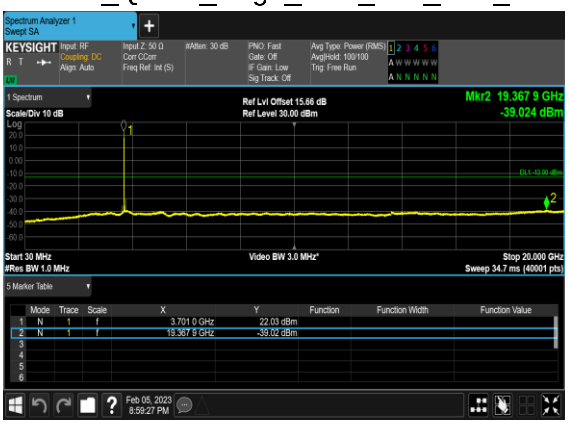
N77(60M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



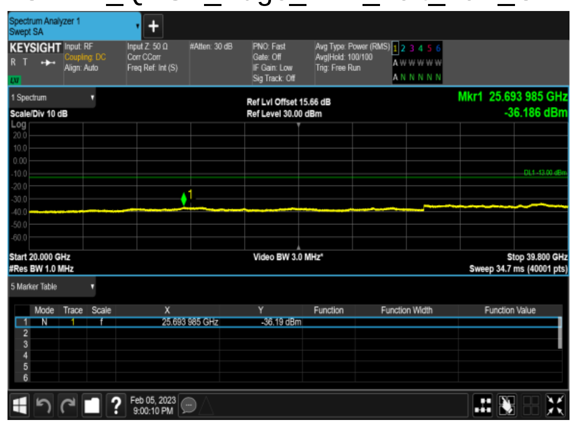
N77(60M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



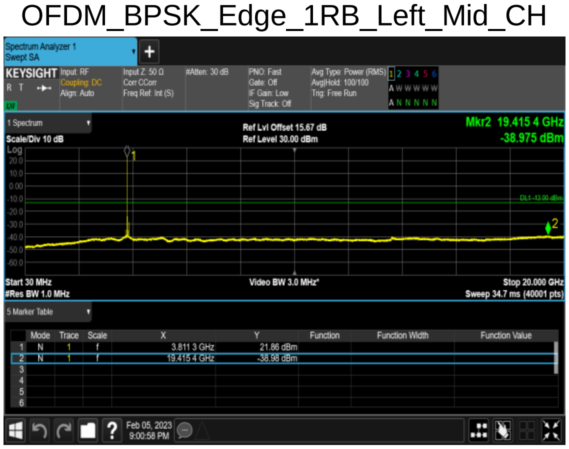
N77(60M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



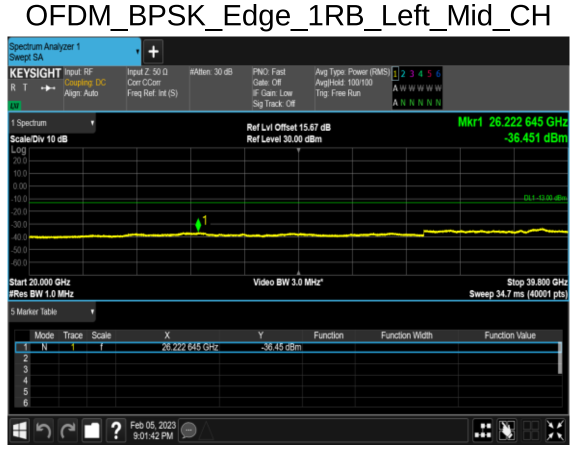
N77(60M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



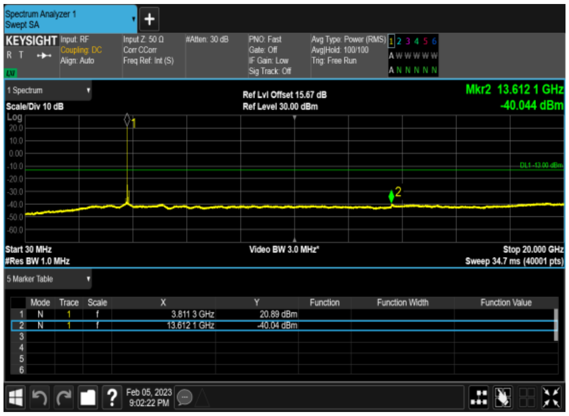
N77(60M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



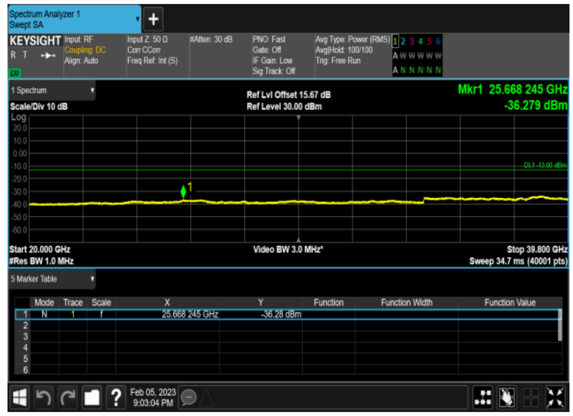
N77(60M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



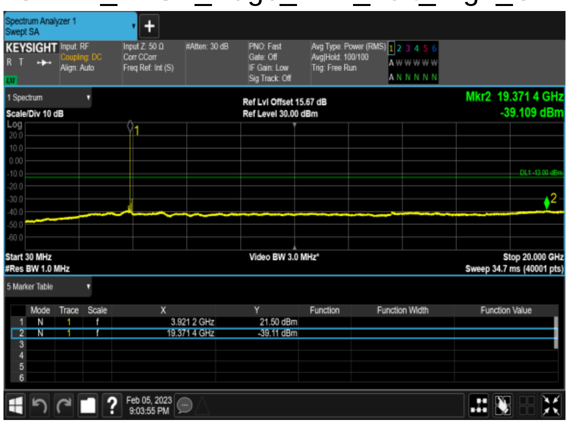
N77(60M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



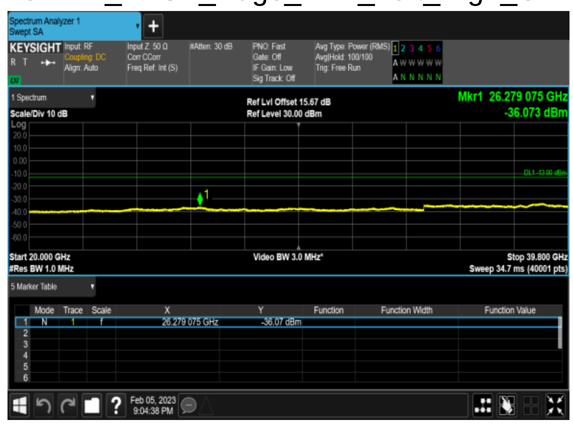
N77(60M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



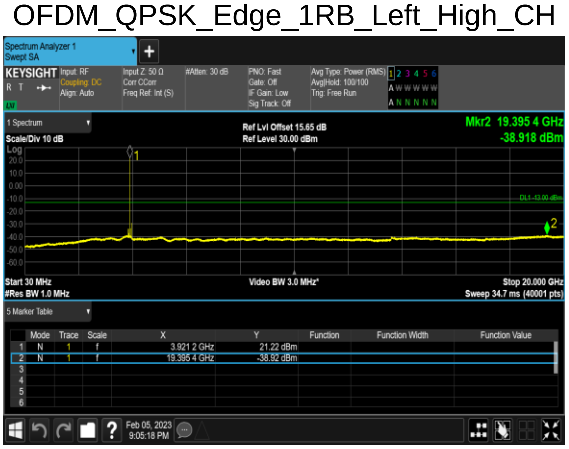
N77(60M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



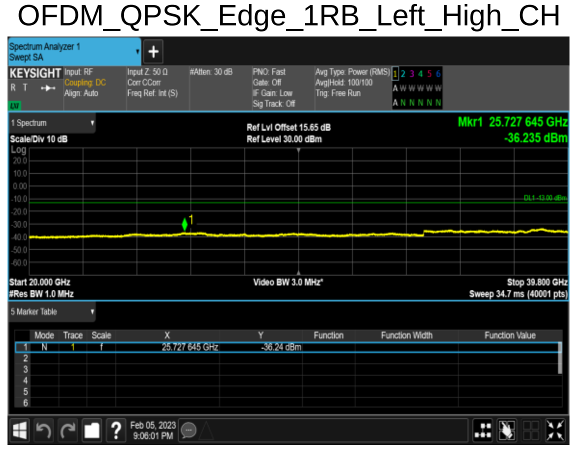
N77(60M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



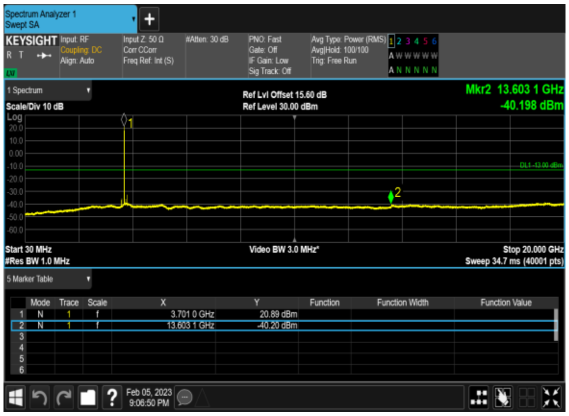
N77(60M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



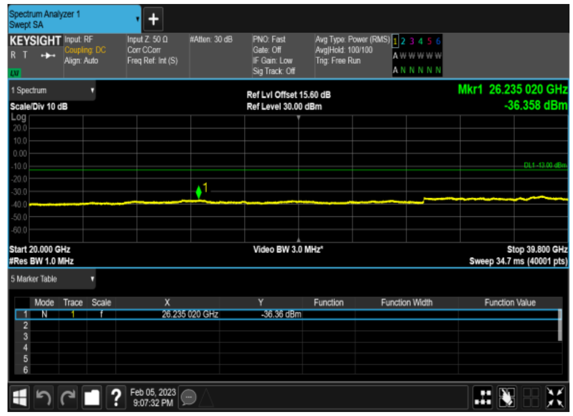
N77(60M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



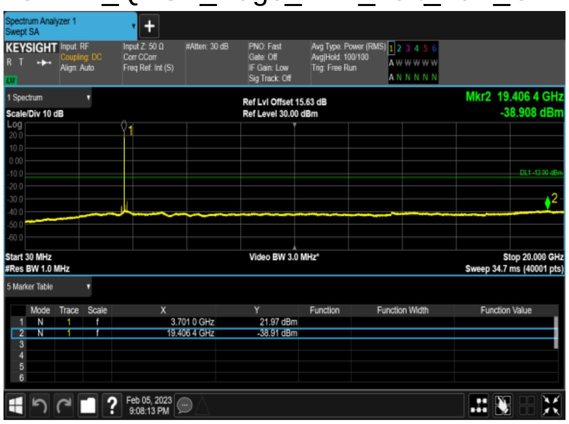
N77(100M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



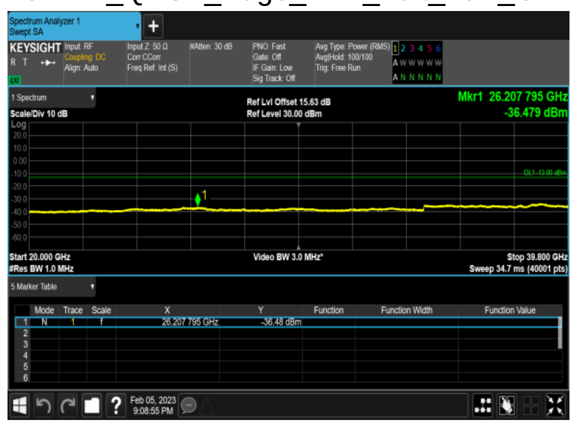
N77(100M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



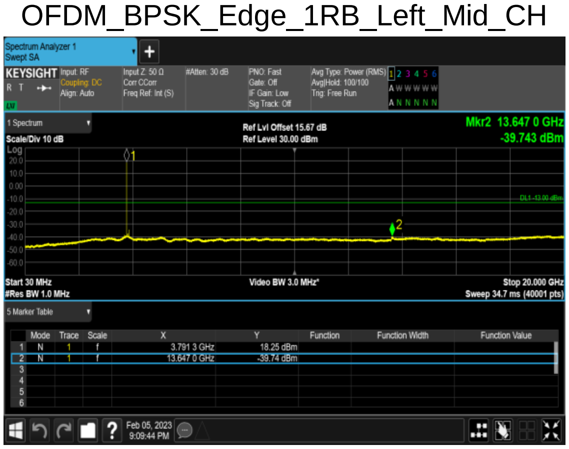
N77(100M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



N77(100M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



N77(100M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



N77(100M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH